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SOME PHILOSOPHICAL IMPLICATIONS OF PSI PHENOMENA: TOWARD A RECONCILIATION OF SCIENCE AND RELIGION

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SOME PHILOSOPHICAL IMPLICATIONS OF PSI PHENOMENA:

TOWARD A RECONCILIATION OF SCIENCE AND RELIGION

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PREFACE

In this dissertation I examine some philosophical implications of parapsychological (or psi) phenomena. Psi phenomena include such things as telepathy, clairvoyance, precognition, psychokinesis ("mind over matter"), and survival phenomena (e.g., apparitions and mediumistic communications). I focus the argument of this dissertation on survival phenomena and precognition, because these particular psi phenomena clearly relate to some traditional philosophical problems, namely, the mind-body problem and the free-will problem, and because an examination of these phenomena is instrumental in demonstrating my thesis. Before discussing the thesis of this dissertation, I will make some general comments about psi phenomena and their philosophical importance.

I want to begin with a caveat. In this dissertation I generally write as though psi phenomena do occur, as though their occurrence is an established fact. The tone of this dissertation reflects my belief that psi phenomena do occur. However, the reader should bear in mind that the alleged occurrence of psi phenomena has no direct logical link with the philosophical analyses I undertake in this dissertation. I reason simply that if psi phenomena occur, then certain interesting philosophical implications follow. Even if psi phenomena do not occur, the study of these implications remains a rewarding philosophical

endeavor. In short, then, I warn the reader not to make the mistake of supposing that the arguments I advance in this dissertation depend essentially on the assumption that psi phenomena occur.

There have always been many skeptics about the occurrence of psi phenomena, even in ancient societies such as those of Greece and Rome in which skepticism was not bolstered by the presuppositions of a sophisticated scientific world-view. In the period of modern science--roughly the last 400 years--the relative number of skeptics has generally increased, for psi phenomena have usually been thought incompatible with physical theory. However, in the last fifteen or twenty years, as the quality of the experimental study of psi phenomena has improved, many people, including some former skeptics, have come to believe that psi phenomena occur. Many scientists and philosophers who have examined the evidence for the occurrence of psi phenomena with an open mind--without being influenced unduly by their disgust for the charlatans and tricksters at the fringes of parapsychology--have become convinced that psi phenomena do occur. As more philosophers have recently come to believe that psi phenomena do occur, there has been an increase in the number of published philosophical articles and books dealing with conceptual issues associated with the occurrence of psi phenomena. This philosophical dissertation is symptomatic of the increased philosophical attention given psi phenomena.

The increase in the number of philosophical publications on psi phenomena is due, in part, I believe, to an awareness among philosophers who examine the evidence for psi phenomena not only that they probably occur but also that they are philosophically important. Psi

phenomena have significant implications for the study of, on the one hand, particular philosophical problems, for example, the problem of other minds (the occurrence of telepathy obviously has relevance here), and, on the other hand, general philosophical concerns about the nature of the universe and of man. The contemporary philosopher H. H. Price has said:

> If Telepathy and Clairvoyance do occur--and I see no way of denying it--then surely they must be extremely important. For it will follow that the human mind has powers entirely different from sense-perception, introspection, memory, and inference. If Precognition occurs, we shall probably have to revise our theories of Time and Causation in the most drastic manner.[1]

There have always been philosophers who have recognized the importance of, and taken an interest in, the occurrence of psi phenomena. Aristotle was interested enough in the possible occurrence of precognitive dreams that he wrote the short piece entitled "On Prophesying by Dreams."[2] Immanuel Kant was impressed enough by Emanuel Swedenborg's clairvoyant feats that he read Swedenborg's descriptions of his putative contacts with a spirit world and then wrote the short philosophical tract Dreams of a Spirit-Seer.[3] In the last hundred years, some eminent philosophers who have recognized the importance of psi phenomena and taken an active interest in research on these phenomena are Henry Sidgwick, a nineteenth-century philosopher of ethics, William James, an American philosopher and psychologist, Henri Bergson, a French metaphysician, C. D. Broad, a British philosopher, and C. J. Ducasse, an American philosopher. These philosophers have been particularly concerned with the philosophical implications of survival phenomena and precognition.

A hundred years ago, when the scientific study of psi phenomena

began in earnest, philosophers and scientists who studied psi phenomena often viewed these phenomena as providing evidence that the mechanistic materialism of nineteenth-century science was mistaken. They regarded telepathy as evidence that the minds of human beings have powers that they cannot have according to mechanistic materialism. And they regarded survival phenomena such as sightings of apparitions as evidence that persons have souls that survive their bodily deaths. They regarded psi phenomena in general, therefore, as supporting the position of adherents of certain religious world-views that incorporated belief in survival and free will and as counting against the correctness of the world-view of mechanistic materialism. While anti-dogmatists such as Thomas Huxley railed against theological resistance to Darwin's theory of evolution and presented, along with the more radical German materialists, such as Büchner and Vogt, the case for atheism and materialism,[4] the early psychical researchers examined telepathy and survival phenomena and in them sought support for the religious doctrine that men are dualistic beings with free will--not mere mechanical automata (possibly with epiphenomenal states of consciousness).

There has been a revolution in science (particularly physics) in the twentieth century, and we have come to distinguish nineteenth-century mechanistic materialism from the physicalism of twentieth-century science. Twentieth-century physicists have had to open their minds to a wide range of strange new physical concepts, and this seems to have made some of them responsive even to the very strange phenomena studied by parapsychologists. Physicists no longer seem so readily

inclined to reject the possibility of psi phenomena on theoretical grounds alone. Futhermore, it appears that current scientific theory is not so obviously incompatible with psi phenomena as was nineteenth-century science and that psi phenomena might even play an important role in the development of future scientific world-views. Many scientists have recently recognized the scientific importance of psi phenomena, and many more of them probably will in the next few decades. The psychical researcher R. C. Johnson expresses similar thoughts as follows:

> However suspicious the majority of scientific men may still be of psychical research in general, here in para-psychology are <u>facts</u> which completely undermine the complacent materialism of the past century. Except to those who prefer not to see them lest they should have to recast their thinking, these facts present an inescapable challenge. I venture to think that the next century will be notable to posterity for two things--(1) that nuclear energy compelled men to find an alternative to war, and (2) that a widening recognition of the importance of psychical research changed the whole climate of thought.[5]

In this dissertation I will argue for the truth of some theses that the nineteenth-century psychical researchers also argued for. I will argue for the thesis that survival phenomena provide support for the survival hypothesis--the hypothesis (or thesis) that human beings have souls that survive the deaths of their physical bodies. Supporting my thesis will require that I evaluate the various types of survival phenomena as evidence for the survival thesis. I will also argue for a second thesis, namely, that the occurrence of precognition does not necessarily have any fatalistic implications and that human beings, therefore, possibly have free will. Supporting this second thesis will require that I examine the free-will problem, cer-

tain arguments for fatalism, and contemporary physics to show that we can give sense to the claim that human beings have free will. I will try to show that human beings have free will despite the physicalistic monism implicit in contemporary science and despite the occurrence of precognition.

Both these theses are subsidiary to my major thesis that a study of psi phenomena and an examination of their implications provide a means by which scientists and adherents of some religions can agree that human beings have souls that survive their physical deaths and that human beings have free will. Just as the world-view of nineteenth-century science and some traditional Western religious world-views were opposed on particular questions about the nature of the universe, its origin, and the nature of man, twentieth-century science and religion are still opposed on those questions. To support my major thesis I will show (1) how the scientific explanation of survival phenomena might require postulation of souls and (2) how scientists and adherents of certain religious world-views can agree about the nature of the soul. And I will also show how a careful analysis of the free-will problem and of precognition reveals that human beings might have free will, in particular, that they might have what has traditionally been called "libertarian free will."

Another central concern of mine in this dissertation is the effect on scientific thought of the explanation of psi phenomena. In the brief history of modern science, the theoretical structure of the scientific world-view has been modified repeatedly as new experimental evidence has been taken into account in the formulation of ever

more adequate and comprehensive theories for explaining natural phenomena. Most historians of science would agree, I believe, that the changes in the theoretical framework of science brought about by Copernicus and Newton, in the first instance, and by Einstein and the quantum theorists, in the second, constituted major "revolutions" in scientific thought. The presently unanswerable question I pose is, Will the scientific explanation of psi phenomena require a major revolution in scientific thought? As a first step toward answering this question, I briefly discuss in this dissertation the major changes in the physical theories of modern science and examine a few theories that have been offered recently to explain psi phenomena. I think it is too soon to judge how significant a change will be required in our current scientific world-view to accommodate psi phenomena, but it is worthwhile to examine the recently offered theories for psi phenomena and to note the opinions of physicists and parapsychologists about the potential explicability of psi phenomena without radical modification of present scientific concepts and theories.

The material in this dissertation is arranged as follows. In Chapter One I offer many examples of psi phenomena. My purpose in presenting these examples is to make it clear what psi phenomena are and how they differ from other occult phenomena, and to show that there is sufficient evidence that psi phenomena occur to warrant a philosophical study of them and their implications.[6]

In Chapter Two I discuss world-views generally, contrast scientific and certain religious world-views, and discuss the compatibility of psi phenomena with past and present scientific world-views. I

suggest that world-views are sets of propositions or beliefs about the nature of the entities populating the universe, about the structure of the universe, about the laws governing events, and about such philosophically and scientifically basic concepts as space, time, and causality. I suggest that there are certain Western religious world-views that always have included, and presently do include, beliefs that are incompatible with the theories of the world-views dominating scientific thought since the Newtonian revolution. For example, the world-views of most Protestant sects (Calvinism being an exception here) include both the belief that human beings have spiritual souls and the belief that human beings have free will. (The world-view of Calvinism does not include the latter belief.) I argue in this dissertation that psi phenomena provide a means by which these particular religious world-views can come to agree with the scientific world-view about the nature of the soul, its survival, and the existence of free will. In Chapter Two I describe the problem of free will and discuss the most popular of its solutions. Since I adopt the libertarian view of free will (the view that determinism is false and that the souls of human beings are entities that are in some sense nonphysical and that can modify the course of physical events by their free and deliberate acts), it is important to show how the libertarian response to the free-will problem differs from other responses. In Chapter Two I also argue that psi phenomena are incompatible with the world-view of classical physics but possibly not incompatible with the contemporary scientific world-view.

In Chapter Three I evaluate survival phenomena as evidence

for the survival hypothesis. I first try to show that the thesis of personal survival is an intelligible thesis, and in doing this I try to reveal the defects in the arguments of some anti-survivalists such as Antony Flew, A. J. Ayer, and Terence Penelhum. I then examine in detail two scientific theories of the soul, and I explain in what sense souls can be intelligibly said to be "nonphysical." This study shows how souls may be viewed as nonphysical while also being treated scientifically, and it helps provide a way to include a libertarian conception of free will within a scientific world-view. In the evaluation of survival phenomena which follows, I examine possible counterhypotheses and counterexamples for each of four common types of survival phenomena, and I try to determine, in view of these counterhypotheses and counterexamples, to what extent the survival phenomena support the survival thesis. I conclude that the survival phenomena give fair-to-good support to the survival thesis and that, therefore, it is not unreasonable to believe that souls exist and might survive death.

In Chapter Four I study precognition and its implications for fatalism and free will. In order to give vivid expression to the fatalistic implication that many people suppose precognition to have, I introduce the notion of a "perfect precognizer." I compare the knowledge of the perfect precognizer with that of Laplace's superbeing. I show that the argument that precognition implies fatalism turns on the assumption that a precognizer has knowledge of future events before they occur. I argue that to escape the fatalistic implication of precognition we must reject not only the determinism of classical physics but also the assumption that a precognizer knows the future before it

comes to pass. I also argue that contemporary science possibly could eventually incorporate both a theory of the soul and the libertarian view of free will. I conclude the chapter with a discussion of the compatibility of precognition and free will.

In Chapter Five I discuss several theories that have been advanced in recent years as a result of attempts to explain psi phenomena scientifically. I show that none of these theories is completely satisfactory. I discuss the possibility that the explanation of psi phenomena will require a major scientific revolution.

In Chapter Six I summarize the results of my inquiries in this dissertation. The most important of these results are: (1) a scientific theory of the soul is possible; (2) the explanation of survival phenomena might require the scientific postulation of souls that survive death; (3) adherents of certain religious world-views might then find themselves in agreement with scientists about the existence, nature, and survival of souls, and this agreement would effect a partial reconciliation of science and religion; (4) a scientific theory of the soul might be compatible with the libertarian view of free will which is espoused by many adherents of religious world-views; (5) precognition does not necessarily have any fatalistic implications; (6) what little precognition that might in fact occur is compatible with the claim that human beings have free will in the libertarian sense; (7) the explanation of psi phenomena will require a significant adjustment in the present scientific world-view, but not necessarily require a major scientific revolution.

ENDNOTES TO PREFACE

1. "Some Philosophical Questions about Telepathy and Clairvoyance," originally published in Philosophy, 1940, reprinted in Philosophical Dimensions of Parapsychology, ed. Hoyt L. Edge and James M. O. Wheatley (Springfield, Illinois: Charles C. Thomas, 1976), p. 107. The italics are Price's.

2. The Basic Works of Aristotle, ed. with an introduction by Richard McKeon (New York: Random House, 1941), pp. 626-630.

3. Trans. by Emanuel F. Goerwitz, ed. Frank Sewall (New York: The Macmillan Co., 1900).

4. Huxley disclaimed atheism and materialism, opting instead for agnosticism and determinism and epiphenomenalism, but his writings helped spread the materialists' philosophy.

5. Psychical Research (New York: Funk and Wagnalls, 1968), p. vii. Johnson's italics.

6. Philosophers, as philosophers, are not interested in establishing whether psi phenomena occur or not. Empirical studies are for scientists. Philosophers can be content in their writings on psi phenomena simply to entertain the possibility that certain psi phenomena occur and then to examine particular conceptual questions raised by the postulated occurrence of psi phenomena. However, it is of benefit to the philosophical reader to have some detailed knowledge of psi phenomena for two reasons: (1) it helps him come to believe that the study of the implications of psi phenomena is not merely an academic exercise without relevance to a well-thought-out view of the world; and (2) it helps him appreciate more fully the importance of a philosophical study of some of the implications of psi phenomena. Because most readers of this dissertation will be relatively ignorant of psi phenomena, the inclusion of the examples given in Chapter One is justified.

SOME PHILOSOPHICAL IMPLICATIONS OF PSI PHENOMENA:

TOWARD A RECONCILIATION OF SCIENCE AND RELIGION

CHAPTER I

THE VARIETIES OF PSI PHENOMENA

The purpose of this chapter is to present a picture, by means of illustrative examples, of the variety and order of psi phenomena and to show to what extent the study of psi phenomena has become scientific in the past century. After some preliminary remarks, I will present three ways of classifying psi phenomena and describe the settings in which psi phenomena can occur. I will then cite examples of most types of psi phenomena, examples that are of sufficient quality and variety, I hope, to establish the presumption that psi phenomena warrant serious scientific and philosophical attention. I will then briefly discuss the history and present state of the scientific study of psi phenomena.

I. Preliminary Remarks

If we begin with some remarks about terminology, we may be able to eliminate immediately some possible confusions about psi phe-

nomena. The words "psychic," "psychical," "paranormal," "parapsychological," and "psi" are all used to refer to the same phenomena. Both "psychic" and "psychical" have also often been used, especially by psychologists and philosophers, to refer to anything mental, as opposed to physical. Because psi phenomena include a variety of physical phenomena, these two terms are not suitable for our regular use. The word "paranormal" covers all psi phenomena, and it is also short and properly emphasizes the fact that psi phenomena are presently inexplicable. Though it is slightly misleading insofar as it suggests that these phenomena are abnormal, it is not too pejorative; so we will sometimes use it. "Parapsychological" is the adjective derived from the noun "parapsychology," which is the name of the scientific study of psi phenomena. The term is suitably accurate though slightly cumbrous. The term "psi" is the best for referring to the phenomena we are concerned with, for it is short, not pejorative, and does not prejudge any theoretical issues about the nature of these phenomena.

It will help in clarifying the status of psi phenomena if we distinguish them from other so-called "occult phenomena." It is not possible to define "occult phenomena" clearly and precisely, since the phrase is used rather loosely to refer to a variety of strange alleged events. It is possible, however, to characterize occult phenomena as those putative phenomena that result from the operation of forces or the activity of beings which are beyond the comprehension of science. Astrology and palmistry are well-known examples of pseudosciences which are purported to be serious studies of, or arts for the production of, occult phenomena. It is correct to call psi phenomena

"occult" insofar as they involve mysterious causal interactions. However, it is necessary to note two things concerning the appropriateness of this classification of psi phenomena. First, the claim that psi phenomena exist is supported by a considerable body of seemingly good evidence. Other occult phenomena, such as precise astrological correlations between planetary positions and human events or correlations between the lines on one's palms and one's fate, are alleged to occur, but no evidence that they occur exists, so far as I know. Second, the mysteriousness of purported causal interactions is relative to the state of knowledge. What is mysterious in one century may be part of common knowledge in the next. In other words, though the purported causal interactions presupposed by the occurrence of psi phenomena are presently mysterious, they might one day be understood. Other occult phenomena, since they apparently never occur, will never be explained. The evidence for the occurrence of psi phenomena and the potential explicability of psi phenomena, therefore, serve to distinguish them from other types of occult phenomena.

As a final preliminary comment, I wish to emphasize that for the sake of the argument in this dissertation I shall assume that all the types of psi phenomena to be discussed in this chapter do occur. Certainly I agree with the many detractors of psi phenomena that the evidence for at least some types of psi phenomena is weak, perhaps even pitifully so. Nevertheless, there is <u>some</u> evidence for all types of psi phenomena, and this is reason enough, it seems to me, to study some of the philosophical implications of the occurrence of psi phenomena. My assumption that some instances of each type of psi phenomena

have occurred entails, for all psi phenomena that I will classify below as "primary," that the putative transfer of information did occur in some instances. For example, when I say that telepathy has occurred I mean that there has been at least one instance of paranormal transfer of information between two human beings. On the other hand, for various "secondary" phenomena, my assumption that instances of them have occurred entails only that certain first-person reports of experiences are accurate. For example, an "out-of-the-body" experience is to be understood as a type of experience accurately reported by some individuals. Whether such experiences are to be explained as actual out-of-the-body wanderings or as hallucinations is definitely subject to debate. I believe it will be clear from the definitions and examples forthcoming in this chapter, and from the contexts of discussions throughout this dissertation, what I mean by saying that a particular type of psi phenomena has occurred.

II. Classifications of Psi Phenomena

Traditionally the varieties of psi phenomena have been divided into three classes. The first major class consists of the instances of extrasensory perception. "Extrasensory perception" may be defined as "the nonsensory and noninferential acquisition of information by a subject about external objects, states, or events." There are several species of extrasensory perception, or ESP. Telepathy is the extrasensory acquisition of information about other minds. Clairvoyance is the extrasensory acquisition of information about external objects. Precognition is extrasensory acquisition of information about future events. Postcognition is extrasensory acquisition of information about

past events.

The second major class of psi phenomena consists of the instances of psychokinesis, or PK. "Psychokinesis" may be defined as "the extramotor influence exerted by a subject on an external physical process, condition, or object." The psychokinetic movement of objects takes a variety of forms. The movements may be very small, as in the so-called "dice work" done at Duke University (to be discussed below), or they may be visible to the naked eye, as during a poltergeist outbreak in which an unknown agency causes objects to be tossed about in a household. The most spectacular of the alleged psychokinetic phenomena are the dematerializations and rematerializations of objects. I refer to such phenomena collectively as "transmaterializations." An object is transmaterialized when it is temporarily or permanently created or destroyed or is transported through other objects, such as walls or roofs, without damage to itself or the other objects, and in apparent violation of our present understanding of the nature of material objects.

The third major class of psi phenomena consists of all those events that ostensibly involve the interaction of the surviving souls of deceased individuals with the perceptible world. Such events are called "survival phenomena." Most instances of survival phenomena involve ESP or PK. They differ from "mundane" extrasensory perception and psychokinesis in that they are readily interpretable as due to the interactions of surviving souls with the perceptible world. Some examples of survival phenomena are poltergeist disturbances, apparitions, hauntings, and (some varieties of) automatic writing. We will

discuss such phenomena later in this chapter.

There clearly is an overlapping of the three major classes of psi phenomena, for survival phenomena are usually just particular cases of ESP or PK that are subject to a survivalistic interpretation. ESP and PK, however, are mutually exclusive classes of psi phenomena. They are also complementary in the same way that ordinary perception and motor activity are complementary: perception gives us information about the world, and by means of it we act intelligently upon the world; similarly, ESP supplies us paranormal information about the world, and PK affords us a paranormal means of acting upon it.

To avoid using complex expressions to refer to certain types of psi phenomena, I have devised a second way of classifying them. I call all ESP and PK phenomena "primary" psi phenomena. I call all survival phenomena "secondary" psi phenomena. This distinction is based upon the fact that ESP and PK can be shown beyond reasonable doubt either to occur or not to occur in specified situations. Survival phenomena, on the other hand, consist of events that are interpretable as the results of the interactions of surviving souls with the world, but that never provide proof that surviving souls do exist.

Recently a third way to classify psi phenomena has been suggested by Dr. Edgar Mitchell, a former American astronaut who is interested in psi phenomena. Mitchell's classification, which reflects his interest in the explanation of psi phenomena and in the evolution of scientific world-views (issues we will be concerned with in Chapters Two and Five), divides psi phenomena into "the lesser phenomena" and "the greater phenomena." The lesser psi phenomena are "the events

called telepathy, clairvoyance, and precognition and some PK events such as teleportation."[1] The greater phenomena include postmortem survival and out-of-the-body experiences that definitely are excursions by individuals' centers of consciousness outside those individuals' bodies. Greater phenomena also include "the bizarre PK effects called dematerialization and rematerialization."[2]

What makes Mitchell's classificatory scheme interesting is his belief that lesser phenomena can probably be explained within the confines of the current basic assumptions of theoretical science and that greater phenomena cannot be so explained, their explanation requiring the overthrow of what Mitchell calls the theoretical structure of "materialistic" science. I will be especially concerned in Chapter Five with the question whether psi phenomena, both lesser and greater, can be explained only by a significant theoretical revolution in science.

III. Settings for Psi Phenomena

As one purpose of this chapter is to present a fairly comprehensive picture of the nature and variety of psi phenomena, it is appropriate to precede our presentation of some examples of psi phenomena by outlining the types of settings in which these phenomena occur.

The three types of settings in which psi phenomena occur are settings in which the phenomena occur spontaneously, semi-controlled settings in which the phenomena are anticipated, and controlled laboratory settings in which the phenomena are anticipated and in which relevant variables can be regulated. Psi phenomena, as I have characterized them, are always associated with human beings,[3] and it is to be expected that they might occur in a number of different states

of consciousness. They in fact do. ESP can occur in the form of an intuition when a person is in a normal waking state of consciousness. It can also occur during dreams, and it can occur when a person passes into an altered state of consciousness and suffers an hallucination, as when a person has a clairvoyant vision. PK occurs in a variety of states of consciousness, just as does ESP. PK phenomena can be produced by mediums in trance, and they can be produced by agents who are conscious and alert, as in poltergeist outbreaks. In the latter type of case, the agents are not aware that they are, or probably are, the sources of the PK phenomena.

The most common semi-controlled settings in which psi phenomena occur are those in which mediums, or sensitives,[4] exhibit their psychic abilities. The settings are usually the living quarters of private homes in which groups of people gather for séances. These settings are only semi-controlled, with respect to normal standards of scientific study, because no attempt is made to study systematically the psychological or physical variables that might affect the production of the anticipated psi phenomena.

Psi phenomena can also be produced under controlled conditions in laboratory settings. The obvious advantages of studying psi phenomena in laboratories are that the controlled conditions of laboratories permit taking strong precautions against fraud, the perennial bugbear of the parapsychologist, and that they permit the measuring of psychological and physiological variables relevant to the production of psi phenomena.

IV. Examples of Psi Phenomena

We turn now to examples of psi phenomena. These examples are necessarily numerous, for there is no other way to represent correctly the variety of psi phenomena. I believe that these examples will provide the data base required for a proper appreciation of the philosophical treatment given psi phenomena in the remaining chapters of this dissertation. To give an idea of the full range of psi phenomena, I will generally present an example of each type of psi phenomena as it occurs outside the laboratory and an example as it occurs within the laboratory. I will group the examples under the three headings "extrasensory perception," "psychokinesis," and "survival phenomena."

A. Examples of Extrasensory Perception

Telepathy. Here is an example of spontaneous telepathy cited by J. B. Rhine, the founding father of American experimental parapsychology:

> A student once came to see me to tell me that during the previous night her roommate had awakened, emotionally upset, hearing her grandmother calling her name. She felt certain this meant there was something wrong at home, and she wanted to telephone. She was persuaded, however, to wait until morning. When she did get in touch with her family, she learned that during the night her father had had a heart attack and that in the excitement her grandmother, who lived with the family, had called for the girl, forgetting that she was away at college.[5]

"Coincidence," we say, when we hear of cases like this. Such coincidences never happen to us, but we suspect that they are bound to happen occasionally. The plain fact is that cases of what appears to be spontaneous ESP cannot prove that ESP actually occurs, for such cases can always be dismissed as "coincidences." So parapsychologists have turned to laboratory experimentation in order to show beyond

reasonable doubt that ESP does occur. Among the best-known laboratory experiments were those begun at Duke University in the 1930's under the direction of J. B. Rhine. In these card-guessing experiments an agent would look at a card taken from a deck while a "percipient," unable to see the card, would write down his guess of its suit. The decks used in these experiments consisted of twenty-five cards of five suits: square, circle, star, cross, and wavy lines. The use of a set of fixed targets permitted a precise statistical evaluation of the success of "guessing" through several decks of the well-shuffled cards. Over the years several individuals proved capable of scoring at statistically highly significant levels under carefully controlled laboratory conditions.

Clairvoyance. Despite the etymology of "clairvoyance," which might lead one to believe that this psychic function involves the "clear seeing" of distant events, information conveyed clairvoyantly, whether it be of an emotional, pictorial, or verbal nature, is often vague because it is poorly apprehended by the conscious mind, and it is sometimes ambiguous because it may be presented to the mind in symbolic form, much as the message of a dream is conveyed in symbols. Once again we will use an example cited by J. B. Rhine:

> An old friend, a business executive, told me that once his mother had gone off on a week-end visit with friends some miles away in the country, leaving her husband at home alone, slightly indisposed. Suddenly she experienced a compelling impulse to return home, even though she could give no rational explanation and the hour (late at night) was unusual and inopportune. She had only a general feeling that there was something wrong at home. She found on arriving there that the house was on fire from a spark from the fireplace. Her husband was asleep upstairs, totally unaware of his danger.[6]

In recent years Uri Geller, an Israeli whom many view as

nothing more than a shrewd seeker of fame and fortune (though this is not my view), has made headlines by his psychic performances. Some scientists have had an opportunity to study his work in their laboratories. Two such scientists, Harold Puthoff and Russell Targ, did a series of experiments with Geller in their laboratory at Stanford Research Institute in Menlo Park, California. The following paragraph from a statement by Stanford Research Institute released in 1973 describes Geller's success at an experimental clairvoyance task:

> Ten identical aluminum film cans were placed in a row. An outside assistant not associated with the research would place the cans in a random position and put the target object into one of them. He would then put caps on all the cans and leave the experimental area, notifying the experimenters that the experiment was ready. The experimenters, who were not aware which can contained the object, would then enter the room with the subject. The subject would either pass his hand over the row of cans or simply look at them. He would then call out the cans he felt confident were empty, and the experimenter would remove them from the row. When only two or three cans remained, the subject would announce which one he thought contained the target object. This task was performed twelve times, without error. The probability that this could have occurred by chance is about one in a trillion.[7]

Precognition. Vanga Dimitrova is a Bulgarian peasant woman blind from youth. She is regarded by some parapsychologists as one of the leading psychics alive today. The Bulgarian government now regulates her psychic activities and sponsors the scientific study of her precognitions. She has a penchant for predicting, with uncanny accuracy, the death dates of individuals. For example, a doctor, who came to Vanga's house one day in order to see whether she did her tricks "consciously or unconsciously," was told that he would die in fourteen years, in 1958, of cancer. Vanga had revealed to the man many personal details of his earlier life and she predicted several other events for the man and two of his children. The surprised man

confided Vanga's remarks to his wife, who in turn confided them to the man's daughter. The daughter reports:

> Many years later, my father decided he had an ulcer. He was a doctor, he should have known better, but perhaps he wanted so hard to believe that he didn't have something worse that he misdiagnosed. He had two operations. The second time they just took a look and sewed him up. He died of cancer--in 1958, on the date Vanga had predicted.[8]

Precognition has also been studied in the laboratory. S. G. Soal, a British mathematician at London University and a well-known parapsychologist, did a famous series of experiments with Basil Shackleton, a professional London photographer. In these experiments Soal used pictures of five different animals rather than the five abstract designs of Rhine's original ESP decks. In the precognition experiments, the targets for Shackleton's guesses were not chosen until the experiments were underway. Only a moment before each of Shackleton's guesses, the experimenter drew a colored counter from a container and let the agent study the target picture which corresponded during that experiment to that color. Shackleton called out from an adjoining room after each of his guesses, and the experimenter then drew the next counter. The pace of the guessing was fairly rapid, only two or three seconds elapsing between each guess. After each experimental session the records of Shackleton's guesses were compared with the target series, and it was found that he hit significantly above chance expectation on the targets one or two places ahead in the target series. These targets, as noted, had not yet been determined by the drawing of counters from the container. The odds against Shackleton making the scores he did over a period of several years are astronomical.[9]

Postcognition. Postcognition (also called "retrocognition") seems to occur much more rarely than other forms of ESP. It has not been systematically studied in laboratories, since it would be difficult to distinguish its occurrence from clairvoyance (i.e., clairvoyance of present records of past events by means of which the postcognition would be verified). I will here give a single example of a spontaneously occurring instance of postcognition. It is reported by R. C. Johnson in his book Psychical Research:

> One of the most famous and frequently quoted cases of retrocognition is that of Miss C. A. E. Moberly and Miss E. F. Jourdain, who were respectively Principal and Vice-Principal of St. Hugh's College, Oxford. The full story is told in the book An Adventure, first published in 1911--a book which has passed through several editions. It is an account of a visit they made to the Petit Trianon in Versailles in 1901, during which they ostensibly saw the gardens as they were in the mid-eighteenth century in the time of Marie Antoinette. They met eight persons there whose behaviour, dress, and manner seemed to them at the time rather peculiar, and they saw many features of the grounds and palace which did not correspond with what they afterwards found to be the reality. They undertook considerable research in French national archives to check up on the strange appearances of their first visit, and the whole case that is presented is remarkable and impressive.[10]

What supposedly happened to Miss Moberly and Miss Jourdain is that as they walked through the gardens of Versailles (in the early 1900's) they experienced a joint postcognition. The minds of the two women, according to the postcognitive interpretation of their alleged observations, directly apperceived the gardens and the visitors to the gardens as they existed a hundred-and-fifty years before. As this example shows, the notion of postcognition is very strange.

B. Examples of Psychokinesis

Psychokinetic effects range from movements so minor that they can be detected only by statistical analyses to instances of levitation

and transmaterializations. I will cite here some representative examples of the types of PK phenomena.

Minor movements of objects. After J. B. Rhine and his coworkers at Duke University had satisfied themselves that they had demonstrated the existence of ESP, they turned to the study of PK. As they had available no psychics who could move objects by mental concentration alone, they resorted to studying the throwing of dice. They reasoned that only slight impulses would need to be applied to rolling dice at crucial points in their trajectories in order to cause them to land with a desired face uppermost. Through a lengthy process of refining their experimental designs, they finally settled on procedures that eliminated spurious results arising from biased dice or unconscious manipulation of the dice. The perfected experimental design called for a set of dice to be tossed mechanically a certain number of times and for each number on the dice to be tried for an equal number of times in a single experiment. The results were generally unimpressive. In fact, the total scores achieved were generally only slightly significant statistically. However, an interesting effect discovered earlier in ESP research, namely, the decline effect, was discovered also in the dice experimentation. "The decline effect" is the name given to the observed decline in scoring which occurs during most psi experimentation. It was observed in the dice experimentation that if the scores for the first, second, third, and fourth quarters of each experiment were plotted, then there was almost always a decline in the scoring from the first through the fourth quarters. If the scoring in the dice experiments had been the result of mere guessing,

the decline effect would not have been observed. Analyses proved the decline effect in most dice experimentation to be highly significant statistically.[11]

Major movements of objects. Far more impressive than the decline effect are all the varieties of observable psychokinetic movements. Let us turn directly to some of the most impressive, those produced by D. D. Home, a British medium of the nineteenth century and perhaps the only great physical medium who was never caught using trickery to perform his feats (presumably not because he was clever but because he never used trickery). Home's mediumship is especially noteworthy because it was examined in depth by one of the leading scientists of the day, Sir William Crookes, the inventor of the Crookes tube (forerunner of the cathode-ray tube) and discoverer of the element thallium. When Crookes published his researches on Home in 1870, he met with bitter ridicule from the other members of the Royal Society. In his defense he said:

> Not until I had witnessed these facts some half-dozen times, and scrutinised them with all the critical acumen I possess, did I become convinced of their objective reality. . . .
>
> Remember, I hazard no hypothesis or theory whatever; I merely vouch for certain facts, my only object being--the truth. Doubt, but do not deny; point out, by the severest criticism what are considered fallacies in my experimental tests, and suggest more conclusive trials; but do not let us hastily call our senses lying witnesses merely because they testify against preconceptions.[12]

R. C. Johnson describes some of Crookes' research with Home:

> He built an apparatus consisting of a simple lever, a spring balance, and an automatic recorder of the balance readings, and was able to record and measure the force which Home could exert when his hands were not in contact with the apparatus or when they dipped into a basin of water placed on the lever under conditions where mechanical force was precluded. Crookes said that the force which Home could exert varied enormously from hour to hour; it might be inappreciable for an hour or more, and then suddenly

> become very strong. Crookes also remarked that while the force was capable of acting at a distance of 2 or 3 feet away from Home, it was always strongest close to him. . . .
>
> . . . . . .
>
> Crookes mentions that there were at least a hundred recorded instances of the levitation of D. D. Home, and that he witnessed three of them. "On three separate occasions I have seen him raised completely from the floor of the room. Once sitting in an easy chair, once kneeling on his chair, and once standing up. On each occasion I had full opportunity of watching the occurrence as it was taking place."[13]

A second important type of psychokinetic major movement of objects are the poltergeist disturbances. These disturbances are called "poltergeists" because they have commonly been thought to be manifestations of "noisy spirits" (a phrase rendered in German by Poltergeister). Researchers report that in a typical poltergeist outbreak objects, generally only those within the confines of a building, are moved and often broken. In rare cases people are slightly injured. Inexplicable rappings and other noises are sometimes heard. Recent poltergeist disturbances have also involved malfunction of electronic equipment such as neon lights, electric typewriters, and telephones. The disturbances generally center near a single person, often an adolescent who is approaching puberty or has recently reached it.

Here is an example of a poltergeist outbreak.[14] Early in 1967 the owners of a souvenir supply company noticed an increase in the number of breakages of merchandise in their warehouse in Miami, Florida. The owners employed two warehouse helpers. The helpers had responsibility for placing newly received items on open shelves in the warehouse and for filling orders. The owners discovered that the breakages were closely associated with the presence of one of the warehouse helpers, a Cuban refugee named Julio. On a day in January, 1967,

while one owner instructed Julio on handling objects carefully and placing them safely on the shelves, a souvenir beer mug crashed to the floor. Julio had been standing motionless and no one else was near the mug. W. G. Roll and J. G. Pratt of the Psychical Research Foundation were soon called in to investigate the poltergeist. They spent several days interviewing witnesses and keeping careful watch in the warehouse. Fifteen breakings occurred in their presence. A total of about 250 inexplicable breakings occurred. Several times the investigators brought their own test objects to the warehouse and placed them on the shelves only to find them smashed on the floor within a few minutes. Although no object was being directly observed when it first began its movement, several objects were seen in midair just before crashing to the floor. Careful observation of the people in the warehouse demonstrated that there was little, if any, chance of fraud. Although Julio was always present when a breaking occurred, he was often many feet from an object and with his back to it when it slid off a shelf. The investigators were competent psychologists, and they studied Julio's psychological profile carefully. They found that he harbored considerable latent hostility and that he had poor verbal skills for expressing his thoughts and emotions. These psychological traits, it is to be noted, are often found in young people associated with poltergeist outbreaks.

Psychic healing. A third type of psychokinetic movement is that associated with psychic healing. A common type of psychic healing is that in which a healer places his hands upon the diseased part of a person's body, the result being that the diseased tissues become

healthy within a matter of hours or days. Some psychic healers perform "psychic surgery," often with dirty pocketknives. They appear to gain knowledge of a person's ailment by ESP and then use psychokinesis as an aid in performing an operation that is painless, causes very little loss of blood, and leaves a wound that heals without infection, the psychokinetic power being used to block pain, stanch blood flow, and disinfect the wound.

Dr. Henry Puharich, an American doctor, studied the work of the Brazilian healer Arigó in the 1960's. Dr. Puharich decided to gain first-hand experience of Arigó's healing art by having Arigó perform an operation on him. He reports as follows:

> The operation scene was a room in which some 90 people crowded around Arigó to see him operate. Arigó with a flourish requested that someone furnish him with a pocket knife, and someone in the audience produced one. Arigó took hold of my right wrist with his left hand and wielded the borrowed pocket knife with his right hand. I was told not to watch the operation on my arm, so I turned my head toward my cameraman and directed the motion-picture work. The next thing I knew was that Arigó had placed a tumor and the knife in my hand. In spite of being perfectly conscious, I had not felt any pain. . . . Yet there was the incision in my arm, which was bleeding, and there was the tumor from my arm. Subsequent analysis of the film showed that the entire operation lasted five seconds.[15]

Dr. Puharich at first thought that he had been hoodwinked. He decided to watch the healing of his arm to see whether an infection occurred, knowing that the operation had been performed under filthy conditions. He knew that he "could always be flown to a hospital in Rio de Janeiro and be saved by modern medicine"[16] if an infection developed. But the wound healed without a drop of pus, and in half the time normally required.

Transmaterializations. Even more disturbing to our precon-

ceptions than the psychokinetic effects produced by healers like Arigó are the alleged transmaterializations which have occurred in the presence of some mediums. In one type of transmaterialization a medium produces a substance called "ectoplasm," which varies in its degree of solidity and visibility (it might be detectable on occasion by infrared light but not ordinary light, for example). With ectoplasm mediums produce many types of objects, the most frequently produced being hands and arms (without bodies). Pseudo-beings, with beating hearts and personalities like individual human beings, have been produced, so it is alleged.[17] All objects created out of ectoplasm are short-lived; they always dematerialize shortly after they have been materialized.

In the other type of transmaterialization a medium causes material bodies to be transported through other bodies, as in the passage of a book through a wooden door, such transportations being in violation of known physical laws. Objects so transported are called "apports."

There are many other types of psychokinetic phenomena, subject in varying degrees to experimental study, and we will give examples of some of these phenomena in the following section.

C. Examples of Survival Phenomena

Survival phenomena are types of psychic phenomena that are readily interpretable as manifestations of the surviving souls of deceased persons. These phenomena range from poltergeist outbreaks to some forms of automatic writing. I have already discussed an example of a poltergeist. I will now present examples of other types of

survival phenomena.

Out-of-the-body experiences. An out-of-the-body experience ("OOBE" for short) is one in which a person experiences his consciousness as existing outside his physical body. Very few people have OOBE's, but some of those who claim to have them have them fairly often, say once a week. Studies have shown that OOBE's usually have several features in common. The experiencer retains normal consciousness. Often he perceives his physical body from a distance of several feet. The experiencer is usually under the impression that his center of consciousness is in what might be called a secondary body, a body which is normally completely immersed in and united with his physical body but which can be loosened from that physical body. The secondary body appears weightless, and it is usually linked to the physical body by what is often described as a quasi-physical cord. Despite the cord, the secondary body is free to travel wherever the person chooses. Only rarely is the experiencer able to interact with other people, and he is almost never perceived. In only a few cases has a person in a secondary body reported being able to move a physical object.

About ten years ago Charles Tart, a psychologist who now teaches at the University of California at Davis, began laboratory studies of OOBE's.[18] He was fortunate to have for his studies a young woman, a "Miss Z," who had been having OOBE's frequently since an early age. In one of Miss Z's typical OOBE's she would "awaken" in the night after having gone to sleep and find herself (her consciousness) near the ceiling of the bedroom. At this time she could look down and observe her physical body. Tart arranged to have Miss Z

sleep in a laboratory room on four nights. During these nights he measured her physiological variables such as EEG pattern, rapid eye movements (which are indicative of dreaming), heart beat, and skin resistance. In order to test for any paranormal component in Miss Z's OOBE's, Tart placed flat on a shelf seven feet above the floor, and well beyond the point Miss Z could reach without disturbing the electrodes pasted to her skin, a large white card upon which he had written a five-digit number. He waited each night until Miss Z was asleep to find a number in a random number table and write it on the card and then place the card on the shelf. Miss Z had several OOBE's during the four nights, but only once did she report that she had floated high enough to view the number from above the level of the shelf. She correctly reported to Tart the number: 25132. The odds against guessing this number are 100,000 to 1.

Apparitions. An apparition is seen when a person has a seeming hallucination of a form that corresponds in appearance to a human being who may be alive or dead. In alleged sightings of apparitions the form seen is discovered (usually not immediately) not to be an actual person or physical object that is subject to known natural laws. Apparitions vary in the degree to which they seem to be physically real. Some apparitions are diaphanous and hazy. Others seem as real as living persons. (Indeed, those who see apparitions are quite often misled initially to believe they are seeing an actual person with whom they are well acquainted.)

Apparitions of people who are about to die or who have just died constitute the majority of apparitions seen. In the famous "Census of Hallucinations" sponsored by the Society for Psychical Research

in the late nineteenth century, this class of apparitions was designated "Crisis Apparitions." The census takers arbitrarily defined a crisis apparition as one that appeared within twelve hours either before or after the death of the person whose apparition was seen. Apparitions that appeared more than twelve hours before a person's death were designated apparitions of the living; those that appeared more than twelve hours after a person's death were designated apparitions of the dead.

The apparition of Captain Eldred Bowyer-Bower which appeared to his half-sister Mrs. Dorothy Spearman will serve as an example of a crisis apparition. Eldred, an Englishman, was a pilot in the Royal Flying Corps. He was shot down by the Germans at dawn on March 19th, 1917, and killed. Mrs. Spearman was living in Calcutta at the time, and she saw an apparition of her half-brother that morning. C. D. Broad tells her story as follows:

> In the latter part of the morning of March 19th, 1917, she was sitting in her room in a hotel in Calcutta talking to her baby son. Her little daughter Joan was in the room with them. Suddenly Mrs Spearman had a feeling that she must turn round. She did so, and there (as it seemed) was her half-brother Eldred, standing in the room. He looked perfectly natural, and she took for granted that he had been posted to India and had come to call on her at the first possible opportunity. She said: 'Fancy coming out here', and told him that she would just put the baby into a safer place and that then they could have a talk. During this period she had turned away from him and towards the baby. On turning round again, intending to go up and embrace her half-brother, she found that he had vanished. He did not appear again, and the little girl Joan showed no signs of having seen anything.[19]

Mediumistic phenomena. Mediums produce quite a range of curious phenomena, some of which I have already discussed. In this section I will discuss two additional sorts of mediumistic phenomena which serve as evidence for survival, the first being the communication

by mediums of information apparently obtained from surviving persons and the second being the apparent temporary possession of a medium by a surviving person.

The communication by mediums of information obtained from surviving persons would depend, it seems, on the initial acquisition of the information by means of what I shall call "spirit telepathy." I characterize spirit telepathy as the telepathic transfer of information from the mind of a surviving person (a "spirit") to the mind of a medium. I think it helpful, since we must keep an eye toward the evaluation later in this dissertation of the parapsychological evidence for survival, to divide the phenomena of spirit telepathy into three categories: (1) mediumistic phenomena in which the medium gives information about a deceased person whom the sitter[20] knew, all of which information the sitter is familiar with; (2) mediumistic phenomena in which the medium gives information about a deceased person whom the sitter knew, but only some of which information the sitter is familiar with, the rest having to be validated by the memories of persons not present or by records containing information that no one living is familiar with; (3) mediumistic phenomena in which several mediums, not all of whom necessarily know each other, write scripts containing obscure allusions to texts, the allusions being independently insignificant but when placed together interlocking to form complex, significant wholes. For brevity, I designate the three types of phenomena "simple-phenomena," "complex-phenomena," and "cross-correspondences," respectively.

There are many reports of examples of <u>prima facie</u> spirit

telepathy in such sources as the Journal of the Society for Psychical Research. In a typical instance of simple-phenomena the medium, usually while in trance, will state a number of facts about a deceased individual who was a personal acquaintance of the sitter. Such feats are not too startling, for they can be readily and plausibly explained as results of unconscious telepathic contacts between the mind of the medium and the mind of the sitter. In complex-phenomena, séances are specifically designed to preclude the acquisition by the medium of the desired information from the mind of the sitter: it is arranged that the sitter will ask questions about persons whom he either did not know or did not know well, and the séance will be scored a success when the medium provides such information. For both simple-phenomena and complex-phenomena there is an appearance of direct communication between the medium and the mind of the deceased individual about whom he states a number of facts.

Cross-correspondences constitute a somewhat more subtle display of apparent spirit telepathy than either simple-phenomena or complex-phenomena. To see this, let us examine one of the best cross-correspondence cases. It occurred early in this century and involved several outstanding and highly reputable mediums, some of whom were unknown to each other and were living in different countries at the time. The putative communicators were chiefly the founders of the Society for Psychical Research, F. W. H. Myers, Edmund Gurney, and Henry Sidgwick, all well versed in the literary classics (a relevant fact, as noted below).

The correspondences occurred over a period of years. The

mediums were mainly automatists (mediums who let their arms "automatically" write out scripts as though the "spirits" are writing through them). The writings of this cross-correspondence case constitute several hundred pages of script, and they contain a large number of obscure allusions to ancient classics that only a classical scholar could trace. A Mr. Piddington was the man for the job of uncovering the many cross-correspondences. He spent several years at the task and made use of the knowledge and suggestions of other scholars. His final judgment was that the scripts contain many cross-correspondences in each of which several allusions (supplied by different mediums), once traced and compared, fitted together to form a coherent whole much as do the independently meaningless parts of a jigsaw puzzle. C. J. Ducasse, a philosopher who was well read in the parapsychological literature, discussed these cross-correspondences and had this to say:

> An additional point of the greatest interest is that the scripts contain numerous statements more or less explicitly to the effect that the discarnate Myers, Gurney, and Sidgwick were the devisers of the scheme of giving out, through automatists isolated from one another, communications that would be separately unintelligible but that made sense when put together or, in some of the cases, when a clue to the sense was supplied in the script of yet another automatist. In this way, the possibility of explaining simply as due to telepathy or clairvoyance the similarities of topic between the scripts of two automatists would be ruled out or greatly strained; and in addition proof would automatically be supplied that the communicators, in their discarnate state, were not mere automata and sets of memories, but retained intellectual initiative and ingenuity; that is, that they were still fully living.[21]

V. The Scientific Study of Psi Phenomena

That psi phenomena possibly do occur is alone sufficient to arouse our philosophical curiosity and to make worthwhile the study of the philosophical implications of such occurrences. However, the

fact that there is enough evidence for the occurrence of psi phenomena to support their scientific study makes the philosophical study of these phenomena of greater moment. In this section I will discuss the history, established results, and present theoretical status of the science of parapsychology, my intention being to show that parapsychologists have provided by their research enough well-established results to warrant serious and detailed examination of the philosophical implications of the occurrence of psi phenomena.

A. History of the Scientific Study of Psi Phenomena

The study of psi phenomena is scientific when it proceeds systematically with appropriate research and experimentation. Historical records indicate that psi phenomena and their scientific study date back to ancient times. There is an account in the writings of the Greek historian Herodotus of an experiment performed by King Croesus of Lydia to determine, it seems, what validity there might be in the claims of the various oracles to have access to "supernatural" knowledge.[22] King Croesus sent embassies to seven oracles, all leaving on the same day. He instructed each embassy to ask its oracle on the one-hundredth day after its departure what King Croesus was doing that day. Only the Delphic oracle replied correctly that the king was engaged in the unusual task of cooking a tortoise and a lamb together in a brass pot.

The experiment by King Croesus was successful. He situated himself a great distance from the "psychic readers," thus helping ensure against fraud. He then chose to perform a highly unusual task, apparently reasoning that if any of the oracles correctly "guessed"

his action, this would be an indication that the oracle was doing more than merely guessing.

Although people have reported apparent cases of spontaneous psi phenomena throughout recorded history, researchers did not begin sustained scientific study of psi phenomena until the late nineteenth century. Sir William Crookes, the British chemist mentioned earlier, did most of his research on psi phenomena in the late nineteenth century. In 1882 in England a group of eminent scholars, led by Edmund Gurney, F. W. H. Myers, and Henry Sidgwick, founded the Society for Psychical Research (the S.P.R.), the purpose of which, as stated in the society's journal, is "to examine without prejudice or prepossession and in a scientific spirit those faculties of man, real or supposed, which appear to be inexplicable on any generally recognized hypothesis." In 1885 William James, the American philosopher and psychologist, was instrumental in founding a sister society, the American Society for Psychical Research (the A.S.P.R.). These two societies conducted a number of experiments in a scientific fashion, their goal being primarily to demonstrate the reality of telepathy.

Although the work of the S.P.R. and the A.S.P.R. lent a great deal of weight to the claim that psi phenomena occur, these two societies did not initiate the use of procedures that would permit precise statistical evaluation of experimental results. That such procedures were needed can be seen if we examine the sort of experiments that the societies sometimes engaged in. Typically they would have a person with alleged psychic ability attempt to reproduce a drawing which an agent in a distant room was producing. Even though the percipient

might occasionally produce a drawing quite similar to the target picture, there was no way in such an experimental design to show that any striking results were due to other than mere coincidence. It was not until the early 1930's that J. B. Rhine at Duke University designed, carried out, and then widely publicized large-scale laboratory experiments which permitted calculation of the odds that the results of any experiment were due to chance alone.

Rhine's experimental designs were fairly simple. The basic part of each experiment was to have the subject attempt to determine which of five target symbols were printed on each of the twenty-five cards that make up an ESP card deck.[23] The twenty-five target cards were arranged in a random order and the subject was not, of course, allowed to see their faces as he made his calls. One set of twenty-five calls for a single target deck was called a "run." During the 1930's the experimenters at the Duke Parapsychology Laboratory conducted thousands of runs, and they progressively tightened the experimental conditions so that controls against the possibility of fraud or normal sensory leakage became nearly perfect. For example, in the Pearce-Pratt experiments of 1933, the subject making the calls and the experimenter handling the cards were in different buildings on the Duke University campus. They performed the experiment by using synchronized watches. Pearce and Pratt independently and without prior consultation handed their records over to J. B. Rhine for evaluation. In this experiment Pearce, an exceptional subject, scored at a rate to be expected by chance only once in about a quadrillion such experiments.[24]

The advantage of Rhine's experimental design over those in which a subject attempts to reproduce a drawing, say, is that the results of the experiments can be compared with what would be expected by chance alone. In a single run mere guessing would yield five correct calls out of the total of twenty-five calls. No matter how many runs are counted, if the calls are based on guessing alone, then they should average five hits per run, even though some runs may have more than five hits and some less.

Rhine and his associates found many subjects who averaged significantly better than chance, as judged by statistical analysis, and they concluded that these subjects exhibited ESP during the tests.

Besides the ESP card experiments, PK experiments using dice were also performed by the personnel at the Duke laboratory. The results of these experiments were much less marked than in the ESP tests, but the workers believed that they found evidence of psychokinesis in the so-called decline effect exhibited in the data, as described above.

In the last forty-five years there has been a great deal of experimentation on subjects having psi ability, not only at Duke but also at other universities and at private laboratories around the world. In recent years there has been a tendency for the experiments to become much more sophisticated and to require the use of elaborate electronic machinery. A couple of examples will make this clear. At the Maimonides medical center Dr. Stanley Krippner and his associates have studied dream telepathy, and they have gotten positive results.[25] The experiments require the electronic monitoring of the

physiological variables associated with the dream state. When a subject in an isolated room begins to dream, the experimenter has an agent in a distant wing of the hospital begin concentrating on a picture which the agent has randomly selected from a large set. When the sleeper ceases dreaming he is awakened by the experimenter through an intercom and asked to describe his dream. The description is recorded. This procedure is repeated for several nights. Later, independent judges are asked to match the target pictures with the dream descriptions, and the results are statistically evaluated.

In the late 1960's Helmut Schmidt, an engineer trained in phsyics, developed what he called a fraud-proof machine which would light up in a random order one of four lamps on a small display board. Which of the four lamps was to light up was determined by the unpredictable decay of a radioactive sample. Schmidt found subjects who achieved results that would be expected by chance only once in a billion such tests.[26]

The work of parapsychologists has been of such good quality in recent years that it has finally begun to receive proper recognition by the scientific establishment. In 1969 the Parapsychological Association, an organization composed of both professional and amateur psychical researchers, became an affiliate of the American Association for the Advancement of Science. Dr. Margaret Mead, the noted anthropologist, was apparently of great help in gaining admission to the A.A.A.S. for the Parapsychological Association when, during the debate on admission, she said:

> For the last ten years we have been arguing about what constitutes science and scientific method and what societies use it. . . . The whole history of scientific advance is full of scientists investigating phenomena that the establishment did not believe were there. I submit that we vote in favor of this association's work.[27]

B. Some Scientific Discoveries of Parapsychologists

One of the first tasks of a scientist in the study of any type of phenomena is to find regularities in the occurrence of the phenomena under study. Having found such regularities, he may then attempt to create a theoretical model by means of which the regularities can be explained and which will guide him in future research. Although parapsychologists have not yet created a satisfactory theoretical conceptual scheme for guiding their research, they have discovered several regularities in the occurrence of psi phenomena.

Several of the regularities discovered by parapsychologists are what we might call "psychological" regularities, that is, regularities explicable to some extent in terms of human attitudes and motivation. For example, the so-called "decline effect," which signifies a decline in the scoring of subjects in laboratory psi research using such tools as dice or cards, is exemplified by almost all subjects in psi experimentation. This effect is generally explained as due to the inevitable boredom suffered by experimental subjects who must sit through days or weeks of routine "guessing" of the outcomes of dice throws and card shuffling. Another example is the so-called "displacement effect" in which a subject consistently guesses, at a rate significantly higher than chance expectation, something like the draw during an ESP card test of the card one, two, or three places ahead of the card that is

ostensibly being "guessed." This effect is generally explained as due to the subject's unconscious fear of doing well at the specific ESP task set before him, namely, the task of guessing the target card. If the target card is the card exposed behind, say, a screen as the subject attempts to perceive it clairvoyantly, then the subject's guesses display the displacement effect if he ostensibly perceives at a statistically significant rate the card that is exposed during the preceding or following guesses.

The displacement effect is an indication of an additional important discovery about psi phenomena, namely, that control of the "psi faculty" (that is, the ability to produce psi phenomena) is largely unconscious: the acquisition of information telepathically or otherwise and the production of PK phenomena occurs at the subconscious level of mind, the conscious mind having little or no control or efficacy in the matter. When conscious motivation is extremely high, as in the case of the poor school girl who scored a perfect run of twenty-five hits when offered a prize of fifty cents for such a feat,[28] the subconscious mind can be prodded by the conscious mind to exercise its psi faculty more effectively than it normally does.

The discovery of some psychological aspects of psi phenomena is significant, but it does not afford theoreticians an adequate basis for creation of a theoretical model by means of which the forces responsible for ESP and PK can be understood. What theoreticians of parapsychology need, it seems, is a better understanding of the physical bases of psi phenomena. They need an understanding of the mechanism in the human brain, or other body part, responsible for control-

ling the production of psi phenomena, and they need an understanding of the forces by means of which psi phenomena are produced. To the present time very little progress has been made on either research frontier. Parapsychologists must wait for advances in neurophysiology in order to understand better the nature of the brain and mind. As for the nature of the forces by means of which psi phenomena are produced, parapsychologists are in the dark, because they have no means of measuring these forces accurately, and because some of their research indicates that the forces by which psi phenomena are produced are, unlike other natural forces, distance independent.[29]

Now that we have examined some examples of psi phenomena and have briefly discussed the history of the scientific study of psi phenomena, we will proceed with a discussion of the philosophical issues with which I am concerned in this dissertation. In the following chapter I will discuss scientific and religious world-views and the explanation of psi phenomena.

ENDNOTES TO CHAPTER I

1. John White (ed.), Psychic Exploration (New York: G. P. Putnam's Sons, 1976), p. 673.

2. Ibid., p. 672.

3. So far as I know, almost all parapsychologists agree that psi phenomena are manifested in nonhuman forms of life. Experimental research supports this contention. I do not intend in this dissertation to give any special attention to animal psi, or "anpsi," as it is called. The interested reader should consult the parapsychological journals for information on this subject.

4. The two substantives "medium" and "sensitive" are used synonymously by parapsychologists. The use of the term "medium" is based upon the belief, perhaps mistaken, that some psychics are "channels" by which the dead communicate with the living. A medium is a person who exhibits extraordinary psychic powers, usually only while in a trance.

5. New World of the Mind (New York: William Sloane Associates, 1953), pp. 3-4. Rhine's italics.

6. Ibid., p. 9.

7. White, op. cit., p. 685.

8. Sheila Ostrander and Lynn Schroeder, Psychic Discoveries Behind the Iron Curtain (New York: Bantam Books, 1971), p. 268.

9. A good account of Soal's work with Shackleton is given in Gardner Murphy's book, Challenge of Psychical Research (New York: Harper & Row, 1970), pp. 125-155. Soal reports the work in Modern Experiments in Telepathy (London: Faber, 1954) by S. G. Soal and F. Bateman.

10. Johnson, op. cit., pp. 55-56.

11. A detailed history of the dice experimentation, at Duke and elsewhere, is given by Louisa E. Rhine, the wife of J. B. Rhine and a notable parapsychologist in her own right, in Mind Over Matter (New York: Collier Books, 1970).

12. Quoted by R. C. Johnson, op. cit., p. 78.

13. Ibid., pp. 78-79.

14. A more complete description of this case is given by J. G. Pratt, ESP Research Today (Metuchen, N. J.: The Scarecrow Press, Inc., 1973), pp. 129-134. Pratt reports on five poltergeist outbreaks which were scientifically investigated in the 1960's. Two of these involved not only the usual mechanical effects, such as levitation of objects, but also electrical effects, such as disturbances of telephones and lights.

15. "Psychic Research and the Healing Process," in White, op. cit., p. 336.

16. Ibid., p. 337.

17. Johnson, op. cit., p. 96.

18. One article in which Tart writes about his studies of OOBE's (it was Tart who coined this acronym) is "Out-of-the-Body Experiences," in White, op. cit., pp. 349-373.

19. C. D. Broad, Lectures on Psychical Research (New York: The Humanities Press, 1962), pp. 168-169. Broad's italics.

20. The "sitter" is the person who attends the medium while he attempts to obtain information paranormally.

21. C. J. Ducasse, A Critical Examination of the Belief in a Life After Death (Springfield, Illinois: Charles C. Thomas, 1961), p. 188.

22. Herodotus, Histories, Book I, Chapters 46-49; my account is taken from H. H. Price's summation in "Some Philosophical Questions About Telepathy and Clairvoyance," in Philosophical Dimensions of Parapsychology, ed. Hoyt L. Edge and James M. O. Wheatley (Springfield, Illinois: Charles C. Thomas, 1976), p. 105. We do not have to believe that this experiment was actually performed as reported by Herodotus. I have presented the story only to make the point that the Ancients were aware of the occurrence of psi phenomena and were also aware of how to evaluate scientifically the alleged occurrence of psi phenomena.

23. As I pointed out above, these decks consist of five cards for each of five suits: square, circle, cross, star, wavy lines.

24. This experiment is described by J. B. Rhine in New World of the Mind (New York: William Sloane Associates, 1953), pp. 13-14.

25. This research is summarized by J. Gaither Pratt in ESP Research Today (Metuchen, N. J.: The Scarecrow Press, Inc., 1973), pp. 32-35.

26. Ibid., pp. 52-53.

27. Quoted in the editorial of the Parapsychology Bulletin, Number 15 (Winter, 1970).

28. The story of Lillian, a young girl from a broken home who became emotionally attached to her female experimenter, Margaret Pegram of the Duke Parapsychology Laboratory, is reported by Louisa E. Rhine in ESP in Life and Lab (New York: Collier Books), pp. 65-68.

29. The research data on this latter point are difficult to interpret and they certainly need to be supplemented. The following theoretical point highlights the difficulties facing the researchers: Psychics such as Edgar Cayce are able to obtain information clairvoyantly about people anywhere on the earth, the vividness of the "perception" and its accuracy apparently being unaffected by the distance between target and percipient, thus suggesting that the force by means of which the data are collected is not attenuated with distance; however, it can be argued, counter to this suggestion, that the force is attenuated with distance, and that psychics have built-in "amplifiers."

CHAPTER II

WORLD-VIEWS AND THE EXPLANATION OF PSI PHENOMENA

As I pointed out in the preface, my major thesis in this dissertation is that psi phenomena provide a means by which adherents of the current scientific world-view and adherents of certain religious world-views might reach agreement about the existence of souls, their survival, and the possible occurrence of libertarian free will. In support of this thesis, I argue for two subsidiary theses. The first thesis is that psi phenomena provide empirical support for belief in souls and their survival. The second thesis is that the occurrence of precognition does not necessarily have any fatalistic implications against the possibility of free will.

The first thesis is a claim about a possible philosophical and scientific interpretation of parapsychological data already gathered. I shall argue (in detail in the following chapter) that the psi phenomena that I have termed "survival phenomena" provide empirical support for the belief that the mental and psychological aspects distinctive of each person can, and do, survive the death of his body. I shall also argue that theoretical parapsychologists might in the future

create a scientific concept of "soul" corresponding to the religious concept of soul in that it is deemed able to survive, but not corresponding to the religious concept of the soul viewed as a spiritual, as opposed to a physical, entity.[1]

The second thesis is a claim about the implications of the occurrence of precognition. I shall argue (in detail in Chapter Four) that certain facts about precognition, although they do not offer clear empirical support for what I will later characterize as the "libertarian" concept of free will, do show that a libertarian concept of free will is compatible with present parapsychological data.

Since my fundamental concern in this dissertation is with the bearing of parapsychological data on the interaction of science and religion on certain points and with how the scientific explanation of psi phenomena will affect certain religious concepts and the evolution of science itself, it is necessary to treat science and religion in very general terms as world-views. I will treat them specifically as world-views that differ historically in important ways and that may yet be found not to stand in sharp contrast on such issues as personal survival once the data of parapsychology are scientifically explained. In this chapter, therefore, I will first discuss world-views generally, some contrasts between religious and scientific world-views, and the extent to which psi phenomena support a religious world-view. I will then discuss the historical evolution of scientific world-views. I will show how classical physics is incompatible with psi phenomena and certain religious concepts and how current physics is possibly incompatible with neither. I shall also discuss, in connection with

classical physics, the problem of free will, so that we will have a reference point for our discussion of precognition in Chapter Four.

I. Scientific and Religious World-Views

In this section I will first discuss world-views in general. I will then discuss some general differences between scientific and religious world-views. Finally, I will show how certain psi phenomena support belief in two elements common to many religious world-views.

A. World-Views

The concept of a world-view is difficult to make precise, but I believe that it can be made clear enough to be of use. A world-view can be conveniently characterized as a set of beliefs about such things as the origins of the universe, the entities existing in the universe, the laws and principles according to which the entities of the universe interact, and the nature of such things as space, time, and causality. It is obviously impossible to delineate any particular world-view completely, because it is not possible in practice to list all the beliefs that constitute a world-view. Therefore, if we are to compare and contrast world-views, we must be content with rather general sketches of particular world-views, and we must realize that many of them share certain sets of beliefs. Despite the impossibility of giving detailed descriptions of world-views, it should be clear that world-views can be distinguished by the beliefs of which they are composed.

A basic feature of world-views that can help us discriminate among them is their two-tiered structure. Let us suppose in our

discussions of world-views, though the supposition can be challenged, that every world-view consists of both commonsense beliefs and theoretical beliefs. Commonsense beliefs concern everyday macroscopic objects and their interactions. Some sets of commonsense beliefs can be common to many different world-views, for many objects with which commonsense beliefs are concerned, such as plants, animals, land, and water, have always existed where human societies have existed. Theoretical beliefs, unlike commonsense beliefs, concern not macroscopic objects but rather the nature and interactions of theoretical entities and, additionally, concern certain basic theoretical concepts.

Although we can distinguish commonsense and theoretical beliefs fairly well in terms of the sorts of objects and interactions with which they are concerned, we should note that how an adherent of a particular world-view perceives the regular behavior and interaction of objects in his environment is conditioned by the theoretical beliefs of his world-view. For example, if an individual adheres to an animistic world-view, he will "see" most moving objects as alive with spirits: trees in the breeze have spirits, streams of water have spirits, and living human beings have spirits.

Because of the importance of the notion of the theoretical beliefs of world-views in our later discussion, we need to discuss them a little further here. I wish to make two points about the theoretical beliefs of a world-view. First, such a set of beliefs constitutes the explanatory framework for a given world-view. For example, in the animistic world-view a set of theoretical propositions (believed by animists to be true) about the theoretical entities

(spirits) of the system may be appealed to in explaining a vast array of naturally occurring phenomena. Second, theoretical beliefs can be used to distinguish different world-views which have largely identical sets of commonsense beliefs. They can be used to distinguish not only scientific world-views from religious world-views, but also scientific world-views from each other and religious world-views from each other. As science has advanced, scientists have substituted new theoretical propositions about new theoretical entities for theoretical propositions they no longer accepted. When enough new, related, and fundamental theoretical propositions have been introduced and accepted widely by the scientific community, a new scientific world-view has taken the place of a former one.[2] Religious world-views, though not subject to a process of evolution exactly like that of scientific world-views, can also be distinguished by the content of their theoretical frameworks no matter when they are articulated in the history of thought.[3]

B. Fundamental Contrasts Between Scientific and Religious World-Views

Before drawing some specific contrasts between scientific and religious world-views, perhaps I should describe in greater detail what I mean by the phrase "a religious world-view." As I pointed out above, it is not possible in practice to list all the beliefs that constitute a world-view, but possibly a brief discussion of examples of religious world-views will help make clear what sorts of beliefs are included in, and what sorts excluded from, religious world-views.

I would suggest that different religious world-views correspond to the different major religions (and possibly even to different relig-

ious sects). We can distinguish these world-views by their different theological beliefs. For example, we can distinguish Christianity from Judaism and Islam by pointing out that according to Christianity God became incarnate as Jesus Christ; Judaism and Islam both reject this doctrine. We can distinguish Islam and Judaism by pointing out that according to Islam Muhammed was the most important prophet of God (Allah); Judaism rejects this doctrine. We can also distinguish religious world-views by their different doctrines concerning the role of sacraments in religious practice, the importance of particular religious documents, the manner by which individuals are brought into a state of sin, and the methods by which individuals are redeemed.

I would suggest, therefore, that the particular theological beliefs of a religion (or in the case of primitive religions like animism, simply the "theoretical" beliefs of the religion) determine which beliefs are included and which beliefs are excluded from the world-view based on that religion. It is particularly important to see that there are many beliefs of religious world-views which are incompatible with the scientific world-view. Examples of such religious beliefs are: (1) when Catholics partake of consecrated bread and wine, it has been transformed into the body and blood of Christ; (2) all human beings are descended from the one man Adam; (3) prayer is efficacious in producing miracles. These and many other beliefs help form distinctively religious outlooks upon the world, and these ways of viewing the world are incompatible with the scientific outlook.[4]

We have already observed that religious and scientific world-views are similar in that they have the same general structure: both

types of world-view are two-tiered, having on the one hand a set of commonsense beliefs about the objects of the world and on the other hand a set of theoretical beliefs constituting an explanatory framework by means of which all the naturally occurring phenomena which are the objects of commonsense beliefs might be explained.[5] We will now discuss some basic contrasts between religious and scientific world-views.

The first contrast consists in the obvious difference in the methods by which adherents of these two types of world-views attempt to establish the truth of their theoretical propositions. As is well-known, the theoretical propositions of religious world-views are accepted by and large on faith. To be precise, no attempt is made to establish their truth; they are simply accepted as true.[6] Religious "theoretical" propositions such as "God created the universe" generally do not have testable deductive consequences by means of which their truth can be established. Scientific theoretical propositions, on the other hand, are subject to rigorous scientific testing and they are believed by most scientists to be true only if they are well-confirmed and fit into acceptable theoretical frameworks.[7]

A second contrast consists in the different theoretical preoccupations of the two types of world-views. Scientific world-views serve to explain, among other things, the natural phenomena of the perceived world. Their theoretical structures explain these phenomena in terms of such theoretical entities as subatomic "particles" and electromagnetic fields, and these theoretical entities are conceived as natural phenomena just as are the phenomena they serve to

explain. Although religious world-views before the rise of modern science often included detailed explanations of natural phenomena (as in the animistic explanations of many types of natural movements), the task of giving such explanations has passed wholly to modern science, and religious world-views can now be best identified by their preoccupations with what, presumably, are essentially religious themes, such as the meaning of human life and the question whether the mental lives of men are as finite as their physical lives. Religious world-views can be distinguished from scientific world-views, therefore, by their preoccupation with individual human beings in relation to the universe[8] and, most importantly, with the question whether, and if so how, individuals can survive their physical deaths. Religious world-views, of course, generally include beliefs about the origins of the universe. However, as they are centrally concerned with individual men, they also usually include theoretical beliefs about the nature of man such that he can survive his physical death. For example, many religious world-views include the belief that men have immortal souls.

A further contrast between scientific and religious world-views consists in the different natures of some of their theoretical entities. In science, all theoretical entities are physical entities, by definition, simply because they are part of the present theoretical structure of science. There are no vital entelechies in biology and no souls in psychology.[9] Even the electromagnetic fields of physics, despite their seemingly nonsubstantial nature as compared with traditional physical entities such as solid bodies, are physical. Science,

in short, is ontologically unitary, claiming that everything is physical.[10] In many religious world-views, in contrast, God and souls are conceived as spiritual entities, and spiritual substance is conceived as immaterial substance. "Substance" here should be taken to mean roughly "that which is capable of independent existence." Although there are philosophical problems involved in making the notions of "substance" and "immaterial substance" clear, these are the best concepts that advocates of religious world-views have had at their disposal for articulating their claims that the universe was created by God and that persons survive their physical deaths. The emphasis, therefore, in many (but not all) religious world-views is on duality of substance, and their theoretical entities stand in ontological contrast to the entities of the natural world.

A final contrast between scientific and religious world-views consists in the tendency of science, on the one side, to look for deterministic material causes for all events whereas some religious world-views, on the opposite side, accept the postulate that human beings have the free will of spiritual agents who can intrude upon the otherwise deterministic course of natural events. Admittedly, not all Western religious world-views accept this postulate, Calvinism and Islam being noteworthy exceptions. Futhermore, it is not immediately obvious that contemporary physics stands in sharp contrast to some religious world-views on this issue. Nevertheless, it is clear that classical physics and many Western religions are opposed in their answers to the qeustion whether human beings have free will, and it will suit my purposes later in this dissertation to take this opposition as an

important point of difference between many religious and scientific world-views.[11]

C. Parapsychological Support for Religious World-Views

The parapsychological empirical support for religious world-views is very limited. It may well prove to be the case that, once theoretical parapsychology is well developed, it will provide a proper theoretical groundwork for finding support for a variety of religious doctrines, such as mystical beliefs about the unreality of time. This, however, is merely a speculation as far as present evidence and theory is concerned. The one religious doctrine for which parapsychology does provide at least a modicum of support is the doctrine of personal survival.[12] We should note that the doctrine supported is that of survival as opposed to immortality. Empirical evidence, it seems clear, cannot give support to a doctrine about all of future time with respect to particular entities, though it can support a doctrine about a finite period of time in which a given entity, such as a soul, might endure.

Since parapsychological data do not support a whole body of religious doctrines, they clearly do not support a particular religious world-view. They simply give some support to a doctrine that many religious world-views have in common. However, this is no small claim, for the doctrine of personal survival occupies an important position in many religious world-views and it plays an important role in the lives and belief systems of many people.

II. The Evolution of Scientific World-Views

It is a commonplace that science makes progress and changes

as scientists acquire an increasingly better understanding of the natural world. It seems to me quite likely that during the next several decades the majority of scientists will accept psi phenomena as natural phenomena and will create a body of theory to explain these phenomena. This eventual acceptance and explanation of psi phenomena seems likely for two reasons: (1) the number of scientists who have come to accept the reality of psi phenomena and have become concerned with explaining them has grown markedly in the last twenty years; (2) throughout the short history of modern science, scientists have generally made rapid progress in explaining the varieties of natural phenomena upon which they have focused their research efforts. Many theories have already been offered as a result of attempts to understand psi phenomena. A satisfactory scientific explanation of psi phenomena will very probably yield an historically significant advance in the development of science. In this section I will discuss the past evolution of scientific world-views. This discussion will help provide an adequate historical background for the later discussion in this dissertation of the theories which have been offered as first attempts at the explanation of psi phenomena. The discussion will help us appreciate the possible impact of the scientific explanation of psi phenomena upon the evolution of science itself.

A. The Three Basic World-Views of Modern Science

In the history of modern science (which began roughly with the Renaissance between the fourteenth and the sixteenth centuries)

we can distinguish three basic world-views, chronologically arranged, namely, the Aristotelian-Christian, the Newtonian, and the Einsteinian. Isolating three scientific world-views in modern science is somewhat arbitrary, to be sure, but my purpose in doing so is simply to emphasize the evolution of scientific thought and to make it clear that scientific thought occasionally undergoes significant shifts. The three world-views to be discussed here consist of very basic scientific ideas and theories which were accepted by most scientists for long periods. Their fundamental propositions about such things as space, the arrangement of heavenly bodies in space, and the dynamics of physical motion are significantly different so that they can be easily distinguished, and the transformations from one world-view to the next constitute significant changes in scientific thought.

The first of the modern scientific world-views was the Aristotelian-Christian world-view.[13] Dante gave vivid expression to this world-view in the Divine Comedy. That the world-view was a Christian world-view clearly shows that at the point in history in which it was accepted a definitive break between science and religion had not yet occurred. This world-view had several important constitutive elements. One element was the belief in God and in other spiritual creatures, God being the spiritual being Who created the universe. A second element was geocentrism, the belief that the earth is at the center of the universe and that it is the stationary object around which the heavenly spheres revolve. Man, being the natural ruler of the physical world, was located, appropriately enough, at the center of the universe. A third basic element of this world-view was Aristotelian

physics, a physics of final as well as efficient causes, of four elements (earth, air, water, and fire), and of natural places of physical bodies according to their weights. One other significant element was the belief that space is spherical, and that beyond the outermost sphere there is simply nothing.

Beginning with the publication of Copernicus' astronomical work of greatest importance, the De Revolutionibus Orbium Caelestium, in 1543, many scientific challenges were offered to the Aristotelian-Christian world-view until most scientists, by the early eighteenth century, accepted the Newtonian world-view.[14] Copernicus' hypothesis of heliocentrism threw man out of the center of the universe and prepared the way for developments much later in chemistry, geology, and psychology which show that man is only a part of nature and not its divinely ordained ruler. As scientific studies progressed in the sixteenth and seventeenth centuries, religion and science became independent, each consigned to its own province, religion to the care of the spiritual world and science to the investigation of the physical world. Gilbert studied magnetism and conceived the earth as a huge magnet, thus "naturalizing" the earth a step further. Galileo studied moving bodies, and as a result he helped develop the concept of inertia and provide a mathematical description of acceleration. He also found "imperfections" in the heavenly spheres (mountains on the moon, spots on the sun, and moons about Jupiter), thus helping overthrow the view that the heavens are perfect and only the sublunar realm is imperfect.

The final break with the Aristotelian-Christian world-view came with Newton's Principia in 1687. Newton propounded a mechanistic,

deterministic system which, once freed from the extraneous theological garb in which Newton clothed some of his speculations, became a model to guide scientific studies for two hundred years. Newton's work and the work of many other great scientists provided a new scientific world-view some of the more basic elements of which were the belief that the earth is not the center of the universe, that man is a natural part of the physical world and subject to the same physical principles as other entities, that space is Euclidean and infinite, that ultimately the universe is composed of atoms moving in the void, that events are to be explained in terms of efficient causality and spatio-temporally continuous causal chains, that God may have created the world but that it is a mechanistic, deterministic system operating according to its own fixed physical laws once it is created, and that it is possible, at least in principle, to predict the future behavior of any isolated physical system, provided the necessary information about its initial state and the forces operating among its components is given.

The Newtonian world-view was not just a convenient working hypothesis which scientists blindly accepted. It was a world-view based on extensive empirical research. Because it explained many diverse phenomena so much better than the Aristotelian-Christian world-view, it was accepted as a more accurate and potentially much more explanatorily fruitful world-view than the prior scientific world-view. Copernicus' hypothesis of heliocentrism, which was a single element of the new world-view, was, for example, scientifically more satisfactory than the Ptolemaic hypothesis of geocentrism. Copernicus' hypothesis provided a better interpretation of astronomical observations

of celestial movements than did Ptolemy's hypothesis.[15] Newton's work, similarly, gave a brilliant mathematical explanation of many types of natural motion, whereas Aristotle's physics was too qualitative and nonmathematical to explain them as well as Newton's theory.

Although the basic principles of classical physics remained fixed for many years, all was not quiet on the research frontiers. Studies of electromagnetic phenomena forced the introduction of the concept of field, to be regarded as an ultimate constituent of the world and just as basic as matter. The postulate of atoms moving in the void was no longer sufficient alone, then, to explain all physical phenomena. But the assimilation of the concept of field did not change the fundamentally mechanistic and deterministic viewpoint of classical physics.

By the end of the nineteenth century some anomalous experimental results caused perplexity among physicists. The Michelson-Morley experiments proved negative, and many strange phenomena, such as X-rays, were discovered in research on matter. These developments resulted in the creation of two significant new theories in the early twentieth century, namely, the theory of relativity and the quantum theory. In the space of about a third of a century, science, physical science in particular, had undergone a very startling transformation from the Newtonian world-view to the Einsteinian world-view.

The Einsteinian world-view, as I shall call it, is the world-view of twentieth-century science, even though Einstein himself did not accept all the apparent implications of quantum mechanics. The relativity theory and the quantum theory, although not compatible in

all respects (since the relativity theory is deterministic and emphasizes the continuity of fields, whereas the quantum theory is essentially probabilistic and emphasizes the discontinuity of matter), are the pillars of the contemporary scientific world-view.

There are several basic elements of the Einsteinian world-view that I will briefly mention. The theory of relativity replaced Newtonian dynamics, causing scientists to view space, time, and mass differently. Space and time were no longer regarded as independent and absolute; the space-time manifold became the new "reality." Mass was shown to be equivalent to energy, and the mass of an object was found to vary with its velocity. The results of measuring length and time were also shown to be relative to the velocity of the measurer.

The quantum theory created a new concept of matter. The hard, massy particles of classical physics were replaced by elementary quanta of matter and energy which were not accurately describable as either particles or waves, but instead seemed to exhibit either a particle-like or a wave-like nature depending on the experimental situation. As the identifiable particles of classical physics passed into the history books, so also did the classical deterministic laws which were supposed to apply to the motions of individual particles. These laws for individual particles were replaced by probabilistic laws for aggregates. Determinism remained, but only for probability functions, not for individual particles.

B. Scientific "Revolutions"

In the brief summary of the evolution of scientific world-views just presented, I isolated three scientific world-views and

observed that the latter two, the Newtonian and Einsteinian, arose as a result of empirical researches.[16] I wish now to suggest that the passage from one scientific world-view to another can be regarded as a sort of intellectual "revolution" caused by the introduction and acceptance of a new way of viewing the universe, the new view being conditioned by the radical modifications in the theoretical framework of science which are required either for the explanation of new empirical discoveries or for the better explanation of facts already in hand.[17]

A world-view, as we have noted, consists of a set of common-sense beliefs and a set of theoretical beliefs for interpreting facts of experience. A scientific revolution occurs when a substantial part of the theoretical framework of the current scientific world-view is replaced by a new theory or theories and when some of the basic concepts of the theoretical framework, such as those about space and time, are either modified or replaced. Scientific revolutions in this sense occurred when the Newtonian world-view replaced the Aristotelian-Christian, and when the Einsteinian world-view replaced the Newtonian.

It would be misleading, I suspect, to place too much emphasis on the occurrence of scientific revolutions as I have described them. Such revolutions do occur, but they are not so neatly specifiable as my descriptions would indicate. It would be just as correct to emphasize the importance of the almost year-by-year minor changes in scientific theories and concepts as it is to emphasize the thoroughgoing major upheavals that occasionally occur in the scientific view of the world. The important point is that scientific theories and concepts

do change, sometimes drastically; and as regards the eventual explanation of psi phenomena, which appear anomalous with respect to present scientific theories, some change in current science will likely be necessitated.

III. The Incompatibility of Classical Physics with Psi Phenomena and Certain Religious Doctrines

In this section and the next, I will discuss, respectively, the incompatibility of classical physics with psi phenomena and certain religious doctrines and the possible compatibility of contemporary physics with psi phenomena and certain religious doctrines.[18] I do this in order to show that the frequent dismissal of psi phenomena as impossible on theoretical grounds is ill-based and that, contrary to what some opponents of parapsychology think, psi phenomena are not plainly impossible. I will suggest that people who believe psi phenomena are impossible are people who believe (or who, if they are to be consistent, should believe) that the theoretical framework of classical physics is still correct. I will also suggest that the theoretical framework of contemporary science is not yet fixed and that new theories to explain psi phenomena might someday be created within the context of this theoretical framework. These discussions should, therefore, prepare the ground for the discussion of theories for psi phenomena in Chapter Five.

In this section I discuss, first, the incompatibility of classical physics with certain religious doctrines. Since the concept of mechanistic determinism provides a good base for discussing the free-will problem and the traditional solutions to it, and since this

concept is an intrinsic part of the philosophy of classical physics, I will also make room in this section for a discussion of the free-will problem--a problem to be discussed at greater length in Chapter Four. I will end the section with a discussion of the incompatibility of classical physics with psi phenomena.

A. The Incompatibility of Classical Physics and Some Religious World-Views

Two world-views are incompatible if, between them, they contain at least one pair of incompatible propositions which are integral to the world-views. Classical physics is incompatible with many religious world-views, for it incorporates in its theoretical structure a belief about the nature of the entities of the universe which is incompatible with corresponding beliefs in religious world-views. Classical physics contains the belief that all the constituents of the universe are composed ultimately of nothing more than material atoms. Many religious world-views, on the other hand, share the belief that in addition to the material entities studied by scientists there are nonmaterial entities in the universe, the souls of human beings being among the most important of these. Clearly, classical physics is incompatible with those religious world-views that incorporate the belief that there exist immaterial souls.[19]

Of those religious world-views which incorporate the belief in immaterial souls, some also incorporate the belief that the exercise of free will by a human being is the action of a soul upon the material world, in other words, that the exercise of free will is an "intrusion" upon the physical order by a nonphysical entity. This

conception of free will is illustrated in Descartes' metaphysics, for he viewed the souls of men as nonphysical. Descartes believed that when men deliberate and then act, they exercise free will, their volitions being "intrusions" (my word, not Descartes') of immaterial souls into the physical order. The actual sites of these intrusions Descartes supposed were the pineal glands of human beings. Of course, adherents of religious world-views other than Descartes' are free to conceive the interplay of souls and the material world differently than did Descartes in order to avoid the notorious difficulty he faced in explaining how different types of substances can interact.[20]

A religious conception of free will as I have just described it is incompatible with classical physics for the obvious reason that classical physics does not accept the belief in immaterial souls. However, it is also incompatible with classical physics because it implies that determinism is false. The determinism of classical physics says that all future events are already fixed by what has occurred; but if free will as I have described it occurs, then not all future events are fixed, for the exercising of free will modifies certain series of physical events in ways that are in principle unpredictable.

Having, at this point, touched upon the perennial philosophical topic of the relation between free will and determinism, I will briefly digress here for a general overview of this philosophical issue. The purpose of this review is not to present crushing arguments for or against any of the solutions of the free-will problem or to say enough to clear up all the confusions associated with the problem. The purpose is to show how the free-will problem can be formulated and

responded to within the context of classical physics. Showing this will in turn make it clear which response, in contrast to other possible responses, I opt for in order to have a second point (the first being the concept of the soul) at which a scientific and a religious world-view might intersect. In addition, the discussion helps prepare the ground for Chapter Four, in which I examine precognition and fatalism, both of which are conceptually closely related to the problem of determinism and free will. The discussion, in short, is necessary preparatory work for our later analysis of some philosophical problems related to precognition.

B. The Free-Will Debate in the Context of Classical Physics

It is helpful to preface a discussion of the free-will debate by making a distinction between freedom and free will. The terms "freedom" and "free will" are used interchangeably in many different contexts and in a variety of sentential constructions. For example, people often speak of "the incompatibility of freedom and determinism" or of "having the freedom to do as one chooses" when they mean to be speaking of free will. We can avoid some possible confusions if we view the concept of freedom as one with which social and political philosophers are primarily concerned. These philosophers are concerned with, among other things, human rights, human liberty, and human freedom. They analyze freedom in terms of the social interrelationships of persons, in particular, the social, economic, and political constraints or lack thereof placed by a society, or by certain groups within a society, upon particular individuals or groups within that society. These philosophers speak of such things as freedom from fear,

freedom from hunger, and freedom from religious persecution, and they speak of freedom to get an education, freedom to choose a job, and freedom to vote as one chooses. Concerned as they are with the interactions of persons, these philosophers conceive individual freedom primarily in terms of external constraints or compulsions which can be placed upon individuals by others. To help avoid confusions in discussions of free will, we should analyze free will in terms of the capacities of individuals to make choices. Generally, the question of whether an individual in a given situation can exercise free will arises only if it is the case that he is free from external constraints or compulsions and is aware of possible alternative courses of action. (Exceptional cases occur when individuals defy the external constraints or compulsions placed upon themselves.) We can distinguish freedom and free will, therefore, by saying that "freedom" pertains to the external relations of individuals with others and "free will" pertains to the inner capacity of individuals to choose among possible alternative courses of action irrespective of the particular social situations they are in when they deliberate and make decisions.

It is difficult to maintain this distinction and not use "freedom" and "free will" interchangeably in discussions of free will and determinism. However, having made the distinction, I believe that we can now profitably proceed to a discussion of the free-will problem and the traditional responses to it.

Classical physics presumes the truth of causal determinism, the thesis that the state of a physical system at any time is a factually sufficient and necessary condition for the state that immediately

follows. This thesis implies that in the view of classical physicists all future events are as fixed as all past events, for classical physicists conceive the universe as nothing but a huge physical system.

Most of us, because we deliberate daily over alternative courses of action and then choose to bring about one of the possible choices, believe that we have the power to bring about certain types of events or to prevent certain events according to our wishes. For example, I can choose to buy milk tonight, or to buy it in the morning, or to eat my cereal dry come daylight, or not to eat cereal at all tomorrow. So long as I am not constrained by an external power (such as a wife who insists that the milk be got tonight), it appears that I am free to choose any of the possible courses of action.[21] According to the thesis of causal determinism, this appearance is illusory, because the choice I will, in fact, make is fixed in advance by the history of the world (or more precisely, by the causally relevant parts of the world). I believe I have free will only because I am not aware of all the conditions determining the choice I will make.[22]

Here we have the basis of the free-will controversy. Our experience tells us that we are indeed free agents, but the determinism presupposed by the scientific enterprise says that all events, including all human actions, are predetermined, so that we really have no choice about what we will or will not choose to do.

There are three traditional responses to the free-will problem, and each of these three responses has been made by several philosophers during the period of modern philosophy. The first response is to accept the thesis of determinism and to reject the doctrine of free will.

This is the position of the hard determinists. The second response, that of the indeterminists and libertarians, is to reject the thesis of determinism and to accept the doctrine of free will. These first two responses presuppose that determinism and free will are incompatible; they differ in that the hard determinists accept determinism and reject free will and the indeterminists and libertarians reject determinism and accept free will. It is also possible to suppose that determinism and free will are compatible. This supposition provides the basis for the third popular response to the free-will problem, that of the soft determinists. The soft determinists say that the free-will problem can be resolved by properly attending to how the word "free" is used. The soft determinists, then, accept determinism but reject the incompatibility of determinism and free will.[23]

The soft determinists' response to the free-will problem suggests a fourth possible approach to this ancient philosophical problem. One might reject the incompatibility of determinism and free will but, unlike the soft determinists, reject determinism. This approach to resolving the free-will problem has not had many advocates. Possibly Charles Sanders Peirce is one major philosopher who adopted this approach to the free-will problem.[24]

I will now briefly discuss each of the three usual responses to the free-will problem.

A hard determinist rejects the alleged intuition of freedom. He concedes that, when a person deliberates on alternative courses of action, that person normally has the impression that it is up to him which course he takes. A hard determinist, however, declares that

the impression of being free to make the choice is illusory. He concedes that people do deliberate and do decide, but he insists that they have to make the choices they make. Their decisions are not free; they are compelled (determined) by the physiological and neurological conditions that are causally sufficient and necessary for producing the behavior that constitutes the making of those decisions. People suffer the illusion that their choices are free because they are not aware of the causal conditions productive of their behavior. In the following passage the determinist John Hospers presents examples of "free" acts and shows how they can be explained in terms of causes of which the agents are unaware:

> A man is faced by a choice: shall he kill another person or not? Moralists would say, here is a free choice--the result of deliberation, an action consciously entered into. And yet, though the agent himself does not know it, and has no awareness of the forces that are at work within him, his choice is already determined for him: his conscious will is only an instrument, a slave, in the hands of a deep unconscious motivation which determines his action. If he has a great deal of what the analyst calls "free-floating guilt," he will not; but if the guilt is such as to demand immediate absorption in the form of self-damaging behavior, this accumulated guilt will have to be discharged in some criminal action. The man himself does not know what the inner clockwork is; he is like the hands on the clock, thinking they move freely over the face of the clock.
>
> A woman has married and divorced several husbands. Now she is faced with a choice for the next marriage: shall she marry Mr. A, or Mr. B, or nobody at all? She may take considerable time to "decide" this question, and her decision may appear as a final triumph of her free will. Let us assume that A is a normal, well-adjusted, kind, and generous man, while B is a leech, an impostor, one who will become entangled constantly in quarrels with her. If she belongs to a certain classifiable psychological type, she will inevitably choose B, and she will do so even if her previous husbands have resembled B, so that one would think that she "had learned from experience." Consciously, she will of course "give the matter due consideration," etc., etc. To the psychoanalyst all this is irrelevant chaff in the wind--only a camouflage for the inner workings about which she knows nothing consciously. If she is of a certain kind of masochistic strain, as exhibited in her previous set of symptoms, she must choose B; her super-

> ego, always out to maximize the torment in the situation, seeing what dazzling possibilities for self-damaging behavior are promised by the choice of B, compels her to make the choice she does, and even to conceal the real basis of the choice behind an elaborate facade of rationalizations.[25]

A hard determinist would argue that all human choices can be similarly explained in terms of unconscious factors at work in the minds of individuals. If a hard determinist accepts materialistic reductionism, he might even go so far as to argue that all human choices are caused by microphysical events in the brains of individuals.

The indeterminists agree with the hard determinists that there is an incompatibility between determinism and free will. As pointed out above, however, in contrast to the hard determinists, who accept the thesis of determinism and reject the doctrine of free will, the indeterminists reject the thesis of determinism and accept the doctrine of free will. Their rejection of the thesis of determinism is the rejection of the thesis that for each event B there is a factually sufficient condition A such that when A occurs B must occur. They say that for an act of free will there is no factually sufficient condition A such that when A occurs the act of free will must occur. If the act of free will had to occur, it would not be free.

An example will make the indeterminists' position clearer. Suppose my nose itches--just a little. I may decide either to rub it or not to rub it. A hard determinist would say that I have no choice in the matter. Given my bodily state and the surrounding conditions at the time my nose itches (perhaps I am at a dinner banquet),

I will be caused either to rub it or to refrain from rubbing it (at least for the moment). The indeterminists say that if I am deliberating whether or not to rub it, then the decision will be free. The conditions at the moment are not sufficient to cause me to do the one or to do the other (though of course by the laws of logic I must do one or the other). Even though I might decide to rub my nose, under the very same conditions (the same in every respect down to the last subatomic particle) I could have decided not to rub it.

There are two kinds of indeterminists, namely, those who think that there is an element of chance in the world (in the sense that some events have no causes at all) and those who think that in addition to physical causes there are causes that are nonphysical in some sense and that produce the actions that persons call "free." More specifically, these nonphysical causes are agents (the conscious, deliberating "parts" of human beings) who are capable of initiating causal sequences (of being the "first causes" of their choices). I shall call the former type simply "indeterminists" and the latter type "libertarians." What indeterminists and libertarians have in common is (1) the rejection of the thesis of determinism and (2) the characterization of free acts as "not physically caused" in the sense that different events might have occurred given the same (physical) causal conditions. A free act, then, (at least for a libertarian) is one an agent performed even though he could have acted otherwise given the same physical causal antecedents.[26]

There are difficulties in the approaches of both the indeterminists and the libertarians to the free-will problem. The indeter-

minists face the charge that if free acts are the result of chance, then the agents who perform these acts are not morally responsible for them. Human beings who make choices have no real power to make the choices they make--the results of their deliberations are due to chance, to unpredictable breeches of the causal order. Agents, those who deliberate and then "make" decisions, are not really responsible for them. This lack of responsibility is a significant worry because in the background of the free-will problem there has always lain the question of whether persons are morally responsible for their acts if, as determinists say, every event is determined by causally relevant past events and every human action, consequently, is determined by an indefinite number of chains of events stretching into the remote past.

The libertarians do not explain choice-making in terms of chance. They say that human beings, or at least their minds, are in part "outside" the deterministic, physical order and that they <u>are</u> the causes of the breeches of determinism. This enables them to avoid the problem of moral responsibility faced by the indeterminists, but it yields a serious charge which they alone face, namely, the charge that they introduce an unusual conception of causality when they say that free agents are substances who can produce effects that are events. The problem, in addition to that of understanding what a substance is, is that of conceiving the relationship between a substance as cause and an event as effect.[27]

I would like to point out that the libertarian conceptions of an agent and of free will are similar to what can be considered

the concepts of soul and of free will which are typical of many religions. A generalized version of a religious concept of a soul is that of a spiritual (i.e., nonphysical) entity that is the essential and immortal aspect of a living human being. It is a spiritual substance which is the center of consciousness and of cognitive functions such as deliberation.[28] As a spiritual substance, it is capable of exercising free will and in so doing of initiating new sequences of physical events irrespective of the specific physical state of the universe preceding any particular newly initiated sequence. These concepts of soul and free will are similar, obviously, to the libertarians' concept of a free agent viewed as a substance possessing the capacity for deliberation and to the libertarian concept of an agent's freedom with respect to initiating new sequences of physical events by means of acts for none of which there is a factually sufficient condition. The only apparent difference in the libertarian and religious concepts of free agent and free will is that the libertarian does not specify that an agent is a soul and that an agent's free acts are free acts of souls.

The soft determinists (who are also often called "compatibilists," the theory of soft determinism itself being called the "Hume-Mill theory") agree with the hard determinists in accepting the thesis of determinism. They disagree with the hard determinists, the indeterminists, and the libertarians by rejecting the putative incompatibility of determinism and free will. They say that this alleged incompatibility is due to a confusion about the notion of "freedom." If we look at how the word "free" is actually used, we see that it

is not contrasted with "determined" but with "constrained" or "compelled." A person is unfree if he is compelled by an external force to do what he does not wish to do (e.g., a robber forces him at gunpoint to turn over his wallet) or if he is constrained by an external force so that he cannot do what he wishes to do (e.g., he might be in jail and wish to be out). If a person's behavior is not controlled in either of these two ways by an external power, then, if it is the result of rational deliberation, it is free.

Soft determinism is a very popular solution of the free-will problem among contemporary philosophers. It has the merit of appealing to ordinary language to resolve an ancient philosophical "muddle," a popular maneuver exercised often by contemporary philosophers. However, this solution of the free-will problem is not universally accepted, and it can be challenged on a couple of points. First, soft determinists can be challenged for not using the concept of freedom used by hard determinists, indeterminists, and libertarians, all of whom contrast freedom with the necessity of causal determinism. A possible reply by the soft determinist is that in analyzing the free-will problem we should use the concept of freedom used in ordinary language, not a concept created by philosophers and theologians. Second, soft determinists can be challenged for not pursuing the causes of human actions far enough. If the cause of a free (unconstrained and uncompelled) act is an internal state of the agent, we should ask what was the cause of the internal state. Obviously, if the thesis of determinism which the soft determinists accept is true, it was caused by an antecedent factually sufficient condition, and ultimately it was

determined by an indefinite number of interrelated causal chains stretching into the past. The act, then, could not have been other than what it was, and the agent who performed the act was not free. The reply of the soft determinist is that we should not speak of physical events as constrained or compelled so that they have to occur. We should view causality more along Humean lines as regular, constant conjunction. If we do this, then we will see that internal causes of human actions are no more constrained than are free human actions. The relevant sense of "constrained" simply does not apply to these internal causes.

The free-will debate is endless. I believe that I have sketched enough of it as background material for my introduction of the notion of free will into this dissertation. As is apparent from the preceding, if the soft determinist's and indeterminist's solutions are not accepted, then if one wants to maintain belief in free will, he faces problems trying to present clear notions of nonphysical agents and of substance-event causality (unless he can show how to dispense with the notion of substance altogether in his philosophcial analyses). For the purposes of this dissertation, I shall opt for the libertarian solution of the free-will problem. I believe that it is a defensible solution which can find some support from attempts at a theoretical understanding of psi phenomena.

C. The Incompatibility of Classical Physics and Psi Phenomena

Many parapsychologists and critics of parapsychology have said that psi phenomena are incompatible with science in the sense that psi phenomena seem to violate some of the basic presuppositions

of science. Such violations cannot be taken lightly, for they indicate that something may be wrong with the theoretical structure of science, and if our scientific theories are in error, then they need to be changed. These writers suggest, therefore, that an explanation of psi phenomena, supposing they really do occur, will require a major revolution in science.

In this section I will quote several writers on the putative conflict between psi phenomena and science. I will suggest that these writers do not have an up-to-date conception of science, that for them science is classical physics. I will then show how psi phenomena do indeed conflict with some basic postulates of classical physics so that the statements of writers who see an irreconcilable conflict between psi phenomena and science will be seen as correct provided "science" is taken to mean "classical physics."

G. R. Price, a medical researcher at the University of Minnesota, stated in "Science and the Supernatural"[29] that the findings of parapsychologists "challenge our very concepts of space and time," and he added that these findings "are--if valid--of enormous importance, both philosophically and practically."[30] Price did not, however, think the findings valid, and he suggested that, rather than believe the findings valid, it was preferable to believe that all the eminent parapsychologists--a group including Henry Sidgwick, Frederic Myers, Sir William Crookes, William James, and J. B. Rhine--were liars, either religiously motivated or out to make names for themselves.[31] In an article which gave a reply to this charge of fraud, J. B. Rhine said that he agreed completely with Price that psi phenomena conflict with

the philosophy of modern science:

> I myself, in a voice scarcely audible in conventional science, have been shouting from the housetops the very same issue that Price has drawn. It is the head-on collision between the facts of parapsychology and the prevailing physicalistic theory of man (or call it mechanism, as he does, or materialism, or physical monism, or what-not). The fact is that this philosophy, on the one hand, and these experimental facts, on the other hand, directly contradict each other in an inescapable, horn-locking manner.[32]

Two more quotations will indicate how widespread is the belief that psi phenomena conflict with modern science. Gardner Murphy, the noted psychologist, writing in 1961, said, "psychical research, or parapsychology, consists of observations recorded in a form which aims at order and intelligibility, but which cannot by any stretch of the imagination be subsumed under the science of today."[33] C. E. M. Hansel, a Welsh psychologist and a sharp critic of parapsychology, views psi phenomena to be in such basic conflict with modern science as to be revolutionary:

> A close inspection of the work of the parapsychologists is, in any case, important for two reasons: if their claims are justified, a complete revision in contemporary scientific thought is required at least comparable to that made necessary in biology by Darwin and in physics by Einstein. On the other hand, if ESP is merely an artifact, it is then important to understand how conventional experimental methods can yield results leading to erroneous conclusions.[34]

Although such writers as Price, Rhine, Murphy, and Hansel say that psi phenomena are incompatible with current scientific theory, I believe that they may be in error. I wish to argue as follows. The world-view of classical physics is one which has passed into the history books: matter is no longer conceived as being made up of hard, massy, impenetrable atoms moving in a void; space is no longer conceived as necessarily uniform and Euclidean; time is no longer

considered to be independent of the motions of observers; and so forth for many basic concepts of classical physics. Twentieth-century science, physics in particular, is radically different in theory from classical physics. The world-view of contemporary science, although its outlines are clearly drawn by relativity theory and quantum theory, is not yet a fixed and perfectly stable view of how the universe is constructed and how it functions in detail. Since the basic theoretical ideas of classical physics are fixed, whereas those of contemporary physics are not yet settled, we can show whether or not psi phenomena are incompatible with classical physics but we cannot show whether or not they are incompatible with contemporary physics, for contemporary scientists may yet create theoretical concepts suitable for explaining psi phenomena. It seems to me, therefore, that writers such as those I have quoted have a view of science which conforms better with classical physics than it does with contemporary science. I wish now to show that if, in the statements of such writers about the incompatibility of psi phenomena and science we substitute "classical physics" for "science," then the statements will be true. I will show this by demonstrating the incompatibility of classical physics and psi phenomena.

There seem to me to be three fundamental theoretical propositions of classical physics which make classical physics incompatible with psi phenomena.[35] These propositions are: (1) all causal interactions, including those required for the transmission of information, are produced by means of spatio-temporally continuous causal chains; (2) time flows uniformly forward; (3) causes always precede

or are simultaneous with their effects. Each type of primary psi phenomena seems prima facie to conflict with at least one of these theoretical beliefs.

Let us consider clairvoyance and telepathy together. The experimental evidence indicates that the successful transmission of information clairvoyantly or telepathically is independent of the distance between the target or agent and the percipient. At least, this is the opinion of one of America's foremost parapsychologists, J. B. Rhine.[36] This experimental result should surprise us, for if we assume that the transfer of information clairvoyantly or telepathically occurs by means of a form of radiation, then, since the intensity of the radiation decreases as the distance between source and receiver increases, we should expect a decrease in scoring rate in ESP tasks as the distance between target and percipient increases.

An obvious reply to this line of reasoning is that if the information is transmitted by an unknown radiation, then perhaps there is an appropriate amplification of the signal by the percipient as the distance between source and percipient is increased, just as a radio receiver can amplify a signal appropriately as it moves from a source so that the volume of the sound it produces remains constant.

The problem with this reply is that there are many difficulties facing a radiation model if it is to be used to explain clairvoyant and telepathic transfers of information. Some of these difficulties are: (1) physical barriers which block a large range of electromagnetic radiation do not retard clairvoyance or telepathy. The hypothetical ESP radiation can pass through concrete walls, lead shields,

and other barriers, all of which prevent the passage of most electromagnetic radiation; (2) the hypothetical ESP radiation passes through physical barriers which block most electromagnetic radiation, but human brains are sometimes sensitive to the ESP radiation. This seems paradoxical, for the ESP radiation ought to pass through brains as easily as through thick lead shields; (3) the hypothetical ESP radiation shows remarkable selectivity, for it can convey information permitting a subject to discriminate distant targets, such as card faces, which are packed tightly together and oriented edgewise to the percipient. On a radiation model the transmitted signals would not be able to convey the received information because the packing and orientation of the targets would cause chaotic interference of the radiation emitted by each target; (4) it is strikingly odd that the hypothetical ESP radiation is so different from the portion of the electromagnetic radiation spectrum responsible for information acquisition in normal vision and yet conveys precisely the same type of information--information about the colors and shapes of objects.

Because of these difficulties, it might seem that more success at explaining clairvoyance and telepathy would be achieved if the concept of action at a distance were invoked. Clairvoyance and telepathy could be explained as involving direct communication between target or agent and the percipient. This explanation, however, would violate the principle of classical physics that all causal interactions between objects widely separated must be achieved by means of spatiotemporally continuous causal chains. If clairvoyance and telepathy involved action at a distance, the causal chains linking target and

percipient would not be spatio-temporally continuous.

Some types of psychokinesis seem more likely to involve action at a distance than do clairvoyance and telepathy. Long-distance meditative healing, for example, in which a healer meditates on a patient who is, say, 500 miles away, with the result that the patient gets well, seems to involve a direct link between meditator and patient. If the "healing power" of the meditator were made to have its effect on a distant patient without the power being transmitted across space to the patient by means of a spatio-temporally continuous causal chain, then the causal interaction would involve action at a distance.[37]

It goes without saying, I suppose, that action at a distance, which is not permitted by the theories of classical physics, is not likely to be a notion used to explain clairvoyance, telepathy, and psychokinesis. It seems more reasonable that a radiation theory, possibly of a very unusual sort, will someday be used to explain these phenomena, so that ultimately they can be shown not to be incompatible with classical physics. However, if a radiation theory cannot be developed, then possibly new concepts of such basic physical notions as space, time, and causality will have to be used to explain these psi phenomena. If such a development of the basic physical concepts of classical physics were required to explain clairvoyance, telepathy, and psychokinesis, then these psi phenomena would be shown thereby to be incompatible with classical physics.

Whereas clairvoyance, telepathy, and psychokinesis <u>might</u> someday be shown to be incompatible with classical physics, precognition definitely is, no matter how it is explained. To show this, we

should first recall that precognition is the nonsensory and noninferential acquisition of information about future events. Since it is noninferential, precognition cannot be explained in terms of the clairvoyant apprehension of the present state of the world or of relevant parts of the world and the inference from the information supplied by such apprehension to the conclusion that a particular future event will occur. Precognition might be explained, therefore, either in terms of backward causation or the unreality of time. If time is real and future events do temporally follow past and present events, then precognition could be explained by saying that when certain future events occur at least part of their causal efficacy is directed backward in time so that these future events have as effects the precognitive experiences of precognizers. If time is unreal, then it can be argued that future events exist "at the same moment" as the precognitive experiences of precognizers, so that these experiences can be comprehended as a form of apprehension of events of the "present." I will have a great deal more to say in Chapter Five about these approaches to explaining precognition. For the present, we need only note that neither approach is permitted by classical physics, for it says causes always precede their effects and time is real. My conclusion is, therefore, that at least some psi phenomena and possibly all of them are incompatible with classical physics.

IV. The Possible Compatibility of Current Physics with Certain Religious Beliefs and with Psi Phenomena

In the preceding section I argued that current physics might be compatible with psi phenomena. In this section I will briefly

discuss some suggestions on how these phenomena might be explained by modern physics. However, a full discussion of some attempted explanations of psi phenomena is reserved for Chapter Five. Before discussing the compatibility of psi phenomena and current physics, I will show how current physics might be compatible with a religious theory of the soul and I will show how a libertarian concept of free will is in principle compatible with current physics.

A. The Compatibility of Current Physics and Certain Religious Concepts

Current physics and a religious belief in souls are compatible only if souls can be conceived as "physical" in the sense that they are theoretical constructs that fit into the structure of current physics. There seem to be available at least two scientific concepts of the soul which might satisfy this condition, neither of which has been worked out in detail. The first concept is that of an entity which is qualitatively distinct from both the particles of classical physics and the fields of classical and contemporary physics. To make this clear, we should note that particles and fields are the two modes of being which scientists have so far conceived for the ultimate constituents of the universe. These two modes of being are, furthermore, qualitatively distinct. As the physicist David Bohm points out, in the development of physics

> there arose the notion that the fields are qualitatively new kinds of entities, which we have the same right to postulate as we have to postulate material bodies (such as atoms), provided that such a postulate will help in the explanation of a large range of facts and experimental results.[38]

Particles are easy enough to imagine, for they are modeled

on the solid objects of daily experience. Fields, on the other hand, are more difficult to imagine, for we can at best think of them as something like a uniform, nonparticulate atmosphere pervading an extended space. Despite this, fields are just as assuredly "physical" as are particles, for they are a necessary theoretical construct in theoretical physics. My suggestion, therefore, is that just as electromagnetic fields were introduced into nineteenth-century physics in order to explain electric and magnetic phenomena, so also might the theoretical construct of "soul" be introduced to explain survival phenomena. And just as electromagnetic fields are "immaterial" compared with the substantial entities of sensory experience, so also might souls be immaterial compared with living human bodies, atoms, or fields. In other words, just as particles and fields are qualitatively different, so also might souls be a third sort of basic entity in the universe, qualitatively different from both particles and fields.

A second scientific concept of the soul is that of a higher-dimensional being existing in its own space-time manifold and interacting with the physical space-time manifold. This is basically a mathematical concept in that it refers to dimensions higher than the four of the space-time manifold, for these higher dimensions can be conceived precisely only by the use of abstract mathematics. It is difficult, if not impossible, to make any intuitive sense of the "physical" character of higher-dimensional entities. Nevertheless, if such a mathematical concept of the soul can be properly developed, perhaps it can be fitted into the theoretical structure of physics.

Souls, then, can be conceived either as entities of the

physical world, qualitatively different from other basic physical entities, or as higher-dimensional entities. Either conception might prove compatible with current physics, and either conception might also prove adequate as a basis for incorporating the qualities of the soul assigned it by religious thinkers, namely, being the center for cognitive and volitional activities and being able to survive the death of the body with which it is intimately associated for a lifetime. This latter claim is not defensible in detail at the present time, but it is, I believe, an intelligible statement and one that can in principle be verified by suitable scientific discoveries and creations.

A problem raised by these physicalistic conceptions of the soul is that, if the religious believer accepted either of them as a scientific account of the soul, then he would have to surrender his belief that the soul is a spiritual entity. Any scientific conception of the soul will assuredly be part of a physicalistic, monistic account of the world, and to accept such an account of the soul the religious believer would have to surrender dualism. Perhaps this development would not be unfortunate for the religious believer, for it would provide him with a positive account of the soul, and this would contrast favorably with the traditionally negative accounts of spiritual substance.[39]

The preceding discussion of scientific conceptions of souls presumes that parapsychological research will demonstrate the need for such conceptions in its attempt to explain survival phenomena. Psi research, as I have said before, might serve as a link between

scientific and religious world-views, and it might do this by showing the need for a scientific concept of the soul in explaining survival phenomena. However, it is possible that psi research will eventually explain survival phenomena in terms of remarkable ESP. If this occurs, then scientific and religious world-views will remain at odds on the issue of survival.

Let us now see how the above remarks bear on the libertarian concept of free will. The question is: Since the religious believers will have to give up their dualism and their spiritualistic conception of the soul, if they accept a scientific conception of the soul, will they also have to give up the libertarian conception of free will? It would seem, at first glance, that the libertarian conception of free will would have to be relinquished, because the scientific enterprise generally presupposes the determinism that libertarianism denies. Futhermore, part of the scientist's purpose in introducing a theoretical construct, like that of the hypothetical "soul," is to use it to provide causal explanations of observed phenomena. If the libertarian conception of free will were to hold for the physicalistic souls, then there would be introduced into the scientific explanation of phenomena an undesirable element of indeterminism, for, according to the libertarians, a free agent is one who can perform acts for which there are no factually sufficient conditions. It seems doubtful that scientists would wish to utilize a theoretical construct which introduced this sort of indeterminism.

There is a possible out for the religious believer and the libertarian. If scientists find that the soul, as either a qualitatively

new entity of the three-dimensional world or a higher-dimensional being, is not fully within the scope of its measuring and investigative capacity, then, just as the behavior of successive subatomic particles is not predictable in detail given constant experimental conditions, so also might the acts of souls not be precisely predictable. The indeterminism characteristic of subatomic physics, then, might appear at the macroscopic level in studies of mental phenomena. If it seemed reasonable to scientists that the unpredictability were due to the exercise of free will by souls, then the libertarian conception of free will might find a place in the theoretical structure of science.

No doubt talk of the scientific respectability of souls and libertarian free will sounds fanciful. We should remember, however, that many new scientific ideas seemed farfetched when they were first introduced. And few experimental results have ever been as "farfetched" as those of parapsychology, so we should expect novel theoretical concepts to be required to explain them.

I would like to eliminate here an ambiguity that seems to have arisen in our discussion of libertarian free will and scientific conceptions of the soul. When I initially described the libertarian view of free will, I said that the libertarian asserts only that the causes of acts of free will are nonphysical agents, not that they are spiritual substances. Because of our discussion of innovative scientific conceptions of the soul, the term "nonphysical" is now ambiguous. It can mean either "not a particle or a field" or "not in the four-dimensional space-time manifold" or "spiritual." Obviously, if the

libertarian were to persist in calling the entities responsible for acts of free will nonphysical after he had accepted the scientific characterization of the soul, he would have to mean by "nonphysical" something other than "spiritual."

There remain a number of unanswered questions about souls which our discussions have raised. I will attempt to address several of these questions in the next chapter. We turn now to a brief consideration of the compatibility of psi phenomena and contemporary science.

B. The Compatibility of Contemporary Physics and Psi Phenomena

I quoted earlier some passages by writers who thought that psi phenomena are incompatible with science. I will now quote some writers who say that psi phenomena might be explicable by current physical theories or by means of new theories that are not inconsistent with present physical theories.

Two philosophers of science, Paul E. Meehl and Michael Scriven, in a rather sharp reply to the article by G. R. Price from which I quoted above, say that

> Price's argument stands or falls on two hypotheses, only the first of which he appears to defend. They are (i) that extrasensory perception (ESP) is incompatible with modern science and (ii) that modern science is complete and correct. . . .
>
> In our view, both of Price's hypotheses are untenable. . . . Price is exactly in the position of a man who might have insisted that Michelson and Morley were liars because the evidence for the physical theory of that time was stronger than that for the veracity of these experimenters. The list of those who have insisted on the impossibility of fundamental changes in the current physical theory of their time is a rather sorry one.[40]

Meehl and Scriven's point is clear: current physical theory may yet undergo some fundamental changes; therefore, psi phenomena are not

necessarily incompatible with modern science.

Gerald Feinberg, a physicist, expressed his own views about the possible compatibility of psi phenomena and current physics and about those who see an incompatibility between the two when, at the 1974 Parapsychology Association conference on quantum mechanics and parapsychology, he said:

> Contemporary physics is a rather rich subject. One should be very wary, unless one makes a fairly detailed study of it, before saying that such and such a thing is in contradiction with what physicists know or what physicists are trying to do. It is a rather dangerous thing to do, and I think that one may live to eat one's words, if one makes that kind of statement.[41]

I will now support the comments of these writers by a brief discussion of some examples of how psi phenomena might be explained by appropriate development of basic physical concepts and theories.

As I suggested earlier, some primary psi phenomena might be produced by means of action at a distance. This is true for clairvoyance, telepathy, and psychokinesis. If contemporary physicists used the concept of action at a distance, they might more easily explain these psi phenomena. Even a superficial examination of contemporary physical theory would reveal, I suspect, that a concept like action at a distance is not much more extraordinary than many concepts presently used by physicists; and if this is so, then action at a distance might be a concept fairly easily assimilated in current physics.

Precognition has always been mysterious, but I doubt that it always will be. As I suggested above, appropriate modification of some of the most basic physical concepts--time and causality--could go a long way toward explaining precognition. We should recall that it was not so long ago that Einstein radically modified several basic

physical concepts, one of them being the concept of time.

Transmaterializations also do not seem beyond the pale of possible scientific explanation. Just as Einstein showed that matter and energy are equivalent, perhaps some new genius will show that transmaterializations are simply well controlled transformations of energy into matter and matter into energy.

V. Changes in Science Required by the Explanation of Psi Phenomena

I want to close this chapter on world-views and the explanation of psi phenomena with a few remarks about the likely effect on the development of science of the explanation of psi phenomena. I will discuss the possibility that psi phenomena might be explained with only minor developments in contemporary science, and then I will discuss the possibility that psi phenomena might be explained only if science undergoes a major revolution on the scale of the Newtonian or Einsteinian revolutions.

Let us assume that psi phenomena will someday be scientifically explained. Possibly the explanation of psi phenomena will require that new theories consistent with present scientific theories be developed and applied to psi phenomena or that present theories and concepts be applied to psi phenomena in novel ways. Primary psi phenomena might be explained in terms of electromagnetic fields or fields of a new type. Since the concept of a field is basic in contemporary physics, such an explanation would not greatly shake the scientific world. Precognition, always a problem for theoreticians, might be explained by adept handling of present theories. Precisely how is unclear, but as I will show in Chapter Five, some physicists

have attempted to apply present theories about fields in the explanation of precognition. Survival phenomena might be explained in terms of super-ESP and hallucinations, the super-ESP by mediums accounting for information which allegedly comes from deceased individuals and hallucinations accounting for alleged sightings of apparitions. If an explanation of survival phenomena along these lines proves correct, then there will be no need to invent a scientific concept of the soul. Transmaterializations, like precognition, seem extremely difficult to explain, but it is not impossible that a new theory, based on current scientific beliefs about the equivalence of matter and energy, could be created for explaining them.

Possibly psi phenomena will not be so "easily" explained. Possibly their explanation will require radical changes in fundamental physical concepts such as space and time and perhaps even the creation of new scientific theories incompatible with present scientific theories. If such a development were to come to pass, then we would speak of a major scientific revolution comparable to the Einsteinian revolution having occurred. This notion of "major scientific revolution" is worth developing to make the point clear.

In our earlier discussion of the evolution of scientific world-views, we noted that there have been two major revolutions in physical theory, the Newtonian revolution and the Einsteinian revolution (which includes the quantum-mechanical revolution). If we examine the Einsteinian revolution, and concentrate particularly on the theory of relativity, we see that the dynamical theories of Newton and Einstein are mathematically incompatible. By this I mean that

the mathematical expressions, derived from these theories, for measuring such basic physical quantities as length, mass, and time in different inertial systems are not equivalent. They yield different numerical values for these basic quantities, except when the relative velocities of the observers is zero. Newton's equations are based on the assumption that length, mass, and time are constant. Einstein's equations show that the results of measuring these quantities depends on the relative velocities of the measurers. The nonequivalence of the Newtonian and Einsteinian equations shows, I believe, that Einstein modified the physical concepts of such basic quantities as length, mass, and time, the result being the creation of a new scientific world-view. A Newtonian physicist and an Einsteinian physicist have, therefore, incompatible views of the universe. This incompatibility of the Newtonian and Einsteinian world-views suggests the general principle that a major scientific revolution occurs whenever basic scientific concepts are changed so that the resultant concepts are not equivalent to the former concepts.[42]

This elucidation of the notion of "major scientific revolution" shows how we might decide whether the explanation of psi phenomena will result in a major scientific revolution. The explanation of psi phenomena will cause a major scientific revolution only if it introduces theoretical concepts not equivalent to those of present scientific theory. The question, therefore, is "Will the explanation of psi phenomena require new concepts of space, time, causality, and perhaps a new understanding of the nature of information acquisition and the nature of the human mind?" The answer is not obvious.

In Chapter Five we will return to the question of how psi phenomena might be explained; we will examine a few theories that have been proposed for explaining them. We will touch briefly upon the question when we discuss theories of the soul in the following chapter, which is devoted to an examination of survival phenomena and a few philosophical problems to which they relate.

ENDNOTES TO CHAPTER II

1. By the term "soul" I mean the Protestant Christian concept of "soul." Although different religions differ in theological specification of the nature and properties of souls, I will not discuss any of these differences. For my purposes it is sufficient that the soul be conceived as a spiritual entity that is the essential aspect of a human being. The soul is to be conceived as the entity that <u>is</u> a particular person even though that person is a human being with a physical body. In accordance with Christian theology, we should say that souls survive the deaths of physical bodies that are identified as human beings when those bodies are alive. When I say that a man <u>has</u> a soul, I mean that the person <u>is</u> the soul and that the man to whom we refer in ordinary discourse is the living human body activated by a soul. This way of speaking should cause no confusion. Relevant theoretical issues concerning such things as personal identity will be discussed in Chapter Three.

2. The dominant scientific world-view of a community may or may not be the world-view accepted by the majority of the members of a society. After scientists have accepted a new world-view, it still takes years for the scientifically-minded laymen of a society to adopt the fundamentally altered outlook grounded upon the new theoretical ideas. Note, for example, the many years that elapsed before the Newtonian system was generally adopted by Western societies: it took years of education of the public in the new mode of thinking before the Newtonian revolution in science had taken root in whole populations, though the Newtonian world-view was widely accepted among educated Europeans by the time Newton died in 1727. The process of transformation of world-views is gradual and not necessarily one that is ever completely finished for a given world-view. (Even today there are flat-earthers among us!) This historical question of the rate of acceptance of new scientific world-views by whole societies is not germane to the philosophical points I wish to make about world-views, however, so I will not pursue it further.

3. This is not to say that religions do not evolve. They do change over the centuries. Science, however, differs from all religions in that it evolves as a result of experimental inquiry and theoretical advances.

4. Throughout this dissertation I will use Christianity as my primary model of a religion. I believe it will be easy for the reader to apply my comments with appropriate modification to other religions.

5. It is obvious, however, that religious theoretical frameworks do not serve to explain natural phenomena in as great detail as current science. Most major religions offer not detailed causal explanations of natural phenomena but general theoretical explanations for the existence of natural phenomena and for the trials and tribulations of human beings. Animism is perhaps an exceptional religious world-view in this regard.

6. By "establish" I mean "find adequate confirmatory empirical support for." Now it is obvious that adherents of religious systems attempt to support their religious theoretical beliefs by argument. The ontological argument is a case in point. The cosmological argument might even be regarded as an appeal to empirical evidence to prove God's existence. So my statement in the text should be read with appropriate qualification. Nevertheless, the point I wish to make--that religious theoretical propositions do not have testable implications and so do not fit into explanatory arguments in the same way that scientific theoretical propositions do--is not affected by the facts about religious argumentation just mentioned.

7. I wish to thank Dr. Kenneth Merrill for pointing out a samll defect in my model of world-views. I say that world-views are two-tiered, that they consist of (1) commonsense propositions about observable macroscopic objects and (2) theoretical propositions about unobservable theoretical entities in terms of which observable events and processes can be explained. I believe that this dichotomy is fundamentally correct for all world-views, but I also believe that it does not reveal the subtle complexity of the relationship of theory and evidence in scientific world-views. In evaluating the evidence for a theoretical proposition, scientists must interpret the evidence, and such interpretation often requires reliance on the correctness of theories about the instruments used in collecting the evidence. Perhaps it would be more accurate, as Dr. Merrill suggests, to view world-views as multi-tiered. We could distinguish levels, or tiers, within the theoretical frameworks of scientific world-views. The most general theories of such world-views would occupy the highest tier. The evidence for these theories might be based, in part, on less general theories about the properties of scientific instruments, say. These less general theories would occupy a lower level or tier in the world-view than the most general theories. Yet both

these tiers would be within what I have called the "theoretical tier" of a world-view. One might compare here a relevant discussion of theories and evidence in Stephen Toulmin's book The Philosophy of Science (New York: Harper & Row, 1960), pp. 80 ff.

8. This comment should make it clear that in my discussion of the relation of science and religious world-views I am concerned primarily with major Western religious world-views. Hinduism and Buddhism, as I understand them, are not nearly so individual-oriented as Western religions, although they are concerned, in their own ways, with the salvation of individual men.

9. I want to take note here of a reductionist thesis that some readers might believe I have assumed in my discussions of scientific world-views. It might be thought that I have assumed that ultimately all phenomena that can be scientifically explained can be explained in terms of the theoretical entities of physics. At the present time most biological phenomena can be explained in terms of chemical interactions, and most, if not all, chemical interactions can be explained in terms of physical processes (specifically, physical processes at the molecular, atomic, and subatomic levels). It seems likely that someday even most mental phenomena will be in principle explicable in terms of biological processes (specifically, neurological processes). The reduction of one science to another, as in the reduction of chemistry to physics, occurs when all the phenomena explicable by the first science can be shown to be explicable by means of the laws, theories, and theoretical entities of the second (reducing) science, and any correspondence rules needed to link the terms of the first science to those of the second. Many scientists and philosophers of science envisage the reduction of all sciences to physics (perhaps by a chainlike process, psychology reduced to biology, biology reduced to biochemistry, etc.). If these envisaged reductions ever occur, then the only theoretical entities needed to explain any phenomenon that is scientifically explicable will be those of physics. And at that point in time it will be correct to say that the only necessary theoretical entities in science are the theoretical entities of physics.

    I have not actually made this reductionist assumption. When I say that all theoretical entities of science are "physical" by definition, I do not mean that they are theoretical entities of physics as opposed to being theoretical entities of any of the other sciences. I mean, instead, that they are "physical" in the sense that they are scientifically described as entities existing in physical space and time. Any event subject to scientific study must be physical in this sense. (What physical space and time are is determined by physicists; they need not be simply ordinary three-dimensional space and one-dimensional time.)

    A further important point is this. Although I sometimes use the words "science" and "physics" interchangeably when speaking

of scientific world-views, science and physics are obviously not identical, and I do not mean to blur the distinction between them. The difference between science in general and the particular science of physics is not significant with respect to my interest in scientific and religious world-views. This is because physics plays such a fundamental role in shaping the scientific view of the world. It is the physicists who tell us what are the scientific views, in any given age, about the nature of matter, space, and time, and about the most comprehensive theories designed to explain natural phenomena. The role of other scientists is subsidiary to that of the physicists in shaping the world-view, but the theories of these other scientists, and the changes made in their theories, are not to be ignored. There have been revolutions in geology and biology and other sciences just as there have been in physics. Despite this, we must look to revolutions in physics in order to mark the most significant changes in the scientific understanding of the nature, composition, and structure of the universe. Revolutionary changes in physics are required for revolutionary changes in the scientific world-view, although changes in other sciences may play important roles in scientific revolutions.

10. More precisely, it is the philosophical monism associated with the scientific outlook according to which everything is physical.

11. About ten pages further on in this dissertation I will present a general discussion of the problem of free will, and at that point I will distinguish "free will" and "freedom" and discuss some solutions of the free-will problem.

12. Although I do not have space in this dissertation to discuss the religious doctrine of reincarnation and the religious doctrine of the trichotomous nature of man (body, soul, and spirit--soul being temporally finite mind and spirit immortal essence), I want to note the fact that there is a considerable body of parapsychological evidence supporting the doctrine of reincarnation (in no specific religious dress) and that theoretical considerations about how the mechanism of reincarnation might work quite possibly could make reasonable a trichotomous doctrine of the nature of man. The interested reader should see, for some reincarnation evidence (but not for a religious or philosophical interpretation of it), the work of Ian Stevenson cited in my bibliography. Although I do not discuss the reincarnation evidence in Chapter Three, I think it is important and relevant in the evaluation of survival phenomena. However, I do not believe that examination of the reincarnation evidence would change significantly the conclusion I draw in Chapter Three.

13. Perhaps it is infelicitous to call a putative scientific world-view the "Aristotelian-Christian world-view," because scientific and religious world-views supposedly include many incompatible

theoretical beliefs. I believe, however, that before the scientific revolution of the seventeenth century scientists had not freed themselves completely of religious modes of thought. Scientists had not yet become the experimenters, precise measurers, and theorizers of the Galilean era, except in a few fields such as optics (and even in optics they were not always precise measurers). Their scientific research and theorizing were strongly colored by their concern for value concepts such as perfection, harmony, and purpose, by their preoccupation with a transcendent, spiritual world, and by their overemphasis on contemplation to the detriment of experimentation. The world-view of these scientists was as much determined by Christian theology as by Aristotelian cosmology and physics. And Thomas Aquinas showed that it is possible to harmonize Christian theology and Aristotelian science. It seems to me, therefore, that there is no obvious difficulty in regarding the world-view of scientists before the seventeenth century as a scientific world-view. Any apparent difficulty in so regarding it can be obviated by noting the basic differences between very early modern science and post-Newtonian science. One of these basic philosophical differences is that early modern science did not generally presuppose physicalistic monism.

14. By "Newtonian world-view," as the discussion below should make clear, I do not mean the personal beliefs of Isaac Newton on scientific issues, but rather the world-view of classical (eighteenth- and nineteenth-century) physics.

15. I do not mean to imply that the superiority of the Copernican hypothesis over the Ptolemaic hypothesis was due merely to the mathematical simplicity of the Copernican hypothesis vis-à-vis the Ptolemaic hypothesis. Actually, the calculations involved in explaining and predicting movements of astronomical bodies on the Copernican hypothesis are not much, if any, less complicated than those required on the Ptolemaic hypothesis. The manifest superiority of Copernicus' hypothesis over Ptolemy's lies in the former's fundamental mathematical simplification of the conceptual structure of astronomy. Copernicus' theoretical restructuring of the celestial orbits eliminated all the major epicycles of Ptolemaic astronomy and, more importantly, eliminated Ptolemy's equants, which Copernicus considered mathematically distasteful. Ptolemy's system was a patchwork system, and it never quite worked perfectly. Copernicus' hypothesis brought conceptual simplicity to astronomy and made astronomy conceptually more coherent. The superior scientific satisfactoriness of the Copernican hypothesis over the Ptolemaic lies, in short, in its conceptual neatness rather than its simplification of the calculations required in doing the astronomer's daily work.

For a discussion of the scientific revolution initiated by the Copernican hypothesis, see Thomas Kuhn's The Copernican Revolution (Cambridge: Harvard University Press, 1957). See pages 68-74, pages 136-143, and especially page 172 and pages 177-181 for support of my remarks about the Copernican hypothesis.

It should be realized also that, even though many astronomers accepted Copernicus' hypothesis for the above-cited reasons when Copernicus first advanced it, it was more than a hundred years after Copernicus' death before the Newtonian revolution was completed, and during this time many other conceptual changes in science ensured that the scientific superiority of the Copernican hypothesis over the Ptolemaic would be granted by all scientists.

16. My statement that the Newtonian and Einsteinian revolutions arose as a result of empirical researches should be read with qualification. I do not wish to be taken as saying that a consideration of newly gathered experimental facts, including anomalous experimental results such as those of the Michelson-Morley experiments, was the sole cause of the major scientific revolutions under discussion. Newton, Einstein, and other great scientists often put forward their new theoretical ideas for philosophical reasons as well as scientific reasons. Einstein's philosophical positivism was largely responsible for his rejections of the ether hypothesis and the concepts of absolute space and absolute time, and these rejections, in turn, prepared the ground for his creation of relativity theory.

17. This discussion of revolutions in science depends heavily on Thomas Kuhn's views expressed in The Structure of Scientific Revolutions, Second edition, enlarged (Chicago: University of Chicago Press, 1970).

18. In this dissertation I treat scientific world-views as metaphysical systems, in particular, as variations of materialistic monism. (This stipulation applies only to the post-Copernican world-views generally accepted by the scientific community.) Of course, science and metaphysics are not the same; however, science and philosophy do overlap in the analysis of scientific theoretical concepts, and scientists, theoretical physicists in particular, want to understand many of the same general properties of the components of the universe that philosophers, metaphysicians in particular, want to understand. By regarding scientific world-views as materialistic monisms, I require that all adherents of these world-views be materialistic monists. Perhaps this requirement is unjustifiable. Many great scientists have accepted the body of scientific knowledge of their day as true for the phenomena that fall within the scope of scientific investigation. They have, however, viewed scientific knowledge as of limited scope, as not pertaining to all things in the universe. Many eminent scientists have believed in a transcendent God beyond the range of scientific investigation. These scientists cannot have viewed the body of scientific knowledge which they accepted as all-inclusive with respect to what exists, so they could not have consistently viewed the scientific world-view of their day as a materialistic monism potentially capable of explaining all that exists. On the other hand, many scientists have adopted the

scientific world-view of their day in place of the religious world-view prevailing in their societies. And they have viewed science as presupposing, or incorporating, a philosophy of materialistic monism. Even though it is perhaps not justifiable to require that a "real" adherent of a scientific world-view be a materialistic monist, I believe that the facts I have cited provide sufficient justification for treating scientific world-views and religious world-views as competing types of metaphysical systems. This treatment might not be correct in all respects, but it is helpful in contrasting science and religion. My major thesis in this dissertation presupposes a significant contrast between science and religion, and my treatment of scientific and religious world-views brings out the needed contrast.

19. It does not appear to me possible for a man to adhere consistently to a scientific world-view and a traditional religious world-view simultaneously. A world-view is a set of beliefs about, in part, what types of entities exist in the universe. If scientific world-views should, as I believe, be treated as varieties of materialistic monism, then no scientific world-view is compatible with any dualistic religious world-view. Noted scientists, such as Descartes and Newton, who wanted to accept both a scientific world-view and a religious world-view could not have done so consistently, so they were led to adopt religiously toned world-views which definitely were not what came to be the world-view of classical physics. Although Newton was a classical physicist because he engaged in the appropriate sort of research, he did not adhere to what became the "Newtonian" world-view--a world-view without the God that Newton believed existed.

20. I doubt that there can be a clear explanation of interaction of substances that by definition have nothing in common. Later in this dissertation I will suggest that the adherents of religious world-views had best conceive the soul as an entity that has at least something in common with the physical entities of the world if they are to present an intelligible account of free will.

21. Precisely here we should be mindful of the distinction between freedom and free will. A usual prerequisite for demonstrating what appears to be the exercise of free will is that the individual have the freedom to choose any one of several courses of action. He must be free from external constraints and compulsions. Being free from external constraints and compulsions, he can, according to the thesis of free will, choose any of the courses of action open to him. In fact, according to the thesis of free will, the individual has the power to try to defy external powers that restrain him. If he fails in his defiant attempts (e.g., his wife takes a broom to him), this only shows that he has less freedom (not less free will) than he desires.

22. The reader should not think that I am saying that determinism is incompatible with both freedom and free will. I am only showing

how the problem of free will is generated by a consideration of the implications of the thesis of determinism presupposed by classical physics. Determinism and freedom (in the socio-political sense) might be compatible. If the choices of individuals are fully determined by their physical constitution, past experiences, and present environment, individuals still will be free if no external constraints or compulsions bear upon them.

23. As I will show below, this way of expressing the soft determinists' position is somewhat misleading.

24. I wish to thank Dr. Merrill for having pointed out to me this fourth possible response to the free-will problem and for having suggested that in some of Peirce's writing he seems inclined to adopt this position.

25. "Free Will and Psychoanalysis," originally published in Philosophy and Phenomenological Research, 1950, reprinted in part in A Modern Introduction to Philosophy, revised edition, ed. Paul Edwards and Arthur Pap (New York: The Free Press, 1965), pp. 75-85. The passage quoted is from pp. 77-78.

26. It should be clear here that when I speak of an "agent" I mean the soul of a human being. The person is the soul, and the soul is the agent. The agent is not, for theoretical purposes, the body and mind of an individual taken as a unit. The libertarian views the agent as an inner mental part of a human being. Some confusion is likely to be caused by this terminology, because for hard determinists, soft determinists, and perhaps even indeterminists, the distinction between an agent as a human being and an agent as the soul of a human being is not crucial to an understanding of the free-will problem.

27. Later in this dissertation I will sidestep the problem of explaining the relationship between a substance as cause and an event as effect by conceiving souls as physical entities in some sense rather than as substances in the sense that they are entities that remain unchanged as their properties vary over time. I will also argue that the philosophical notion of "substance" is unclear and is not needed either in philosophy or in science. This argument, too, will help in sidestepping the above-mentioned problem.

28. The references to nonphysical, spiritual substances in this section are obscure, admittedly. In the next section I will try to show how theoretical work in parapsychology might provide some relief from this obscurity.

29. Science, Vol. CXXII (1955), 359-367.

30. Ibid., p. 359.

31. Price recently wrote that he has changed his mind about the motives of some of the parapsychologists and that he has come to believe in ESP. See Philosophers in Wonderland, ed. Peter French (St. Paul: Llewellyn Publications, 1975), p. 373.

32. "Comments on 'Science and the Supernatural'," Science, CXXIII (1956), 11.

33. Challenge of Psychical Research (New York: Harper & Row, 1961), p. 1.

34. ESP: A Scientific Evaluation (New York: Charles Scribner's Sons, 1966), pp. 7-8.

35. I will restrict my attention to primary psi phenomena in what directly follows.

36. Rhine makes this claim in several of his books, one such book being New World of the Mind (New York: William Sloane Associates, 1953).

37. Generally healers use the "laying-on-of-hands" technique to induce cures in patients, but not all healers require that their patients be near them. Katherine Kuhlman has demonstrated the ability to heal at a distance, and many other noted healers, such as Ambrose and Olga Worrall, can do likewise. Chapter Three of Dr. Thelma Moss's book The Probability of the Impossible (New York: New American Library, 1974) contains an interesting discussion of healers and their ability to create influences, healing and otherwise, at a distance.

38. Causality and Chance in Modern Physics (London: Routledge and Kegan Paul Ltd., 1957), p. 44.

39. By "negative account" I allude to definitions of "spiritual substance" as "nonmaterial, nonspatial substance." I grant that positive attributes of the soul have often been named. Descartes said its essential attribute is thinking. But the concept of spiritual substance, so far as I know, has never been given a positive description that would enable a scientist to recognize it when he encountered it experimentally.

40. Science, CXXIII (1956), 14.

41. Quantum Physics and Parapsychology, ed. Laura Oteri (New York: Parapsychology Foundation, Inc., 1975), p. 248.

42. Admittedly, I do not spell out what are "basic" scientific concepts and how we may determine, other than by comparison of mathematical formulas, when they are not equivalent. I think there is usually a consensus of opinion in any scientific discipline

on what are the basic concepts of the discipline. For physics I believe that space, time, mass, and causality are obviously basic concepts. The fact that many other concepts are quite important in physics and other sciences indicates, I believe, that modifications of these concepts can result in relatively important theoretical changes in a science. Although it would be an impossible task, if we could arrange a hierarchy of scientific concepts in terms of their fundamental roles in scientific theories, then we could measure the extent to which a modification of a concept or the introduction of a new theory caused a revolution in scientific thought. We could, consequently, speak of relatively minor scientific revolutions and relatively major ones. The term "major scientific revolution" would be reserved for the introduction of new theories which affected most or all of the most fundamental scientific concepts of a discipline.

It is sometimes said that the Newtonian scheme is a special case of the Einsteinian scheme. It is argued, for example, that for the velocity zero, the masses and lengths of objects are the same in the Newtonian scheme as they are in the Einsteinian scheme, and that the Newtonian scheme simply does not apply for high relative velocities at which the Newtonian and Einsteinian schemes yield quite different results in measurements of time, length, and mass. If one takes this view, then one might consider the Newtonian and Einsteinian schemes as compatible. However, this view of the two schemes suffers the defect that for all relative velocities other than zero, the Newtonian formulas and Einsteinian formulas yield different results, even for macroscopic terrestrial velocities for which the Newtonian scheme is claimed to be accurate. It seems to me, therefore, that it is not satisfactory to view the Newtonian scheme as a special case of the Einsteinian scheme. The two schemes offer different concepts of mass, length, time, and space. The Einsteinian scheme, rather than supplementing the Newtonian scheme, is a different and contradictory conceptual scheme.

CHAPTER III

THE SOUL AND SURVIVAL PHENOMENA

I earlier suggested that parapsychological research on survival phenomena might someday be the means by which scientists and adherents of certain religious viewpoints reach agreement about the existence and nature of souls and about souls' survival of physical death. The purpose of this chapter is to evaluate secondary psi phenomena as evidence for the survival of souls. Because many contemporary philosophers do not believe that the claim that persons survive their physical deaths is intelligible, I will begin the chapter with an examination of the reasoning of some of these philosophers on this issue. I will try to show how, despite their arguments, we can give sense to the claim that souls survive. I will then examine two theories about the nature of souls, specifically, the theories of J. R. Smythies, a philosopher and psychiatrist, and of Elmer and Alyce Green, two scientists specializing in biofeedback research. Next, I will examine in detail the parapsychological evidence for survival. My conclusion will be that the data gathered so far on survival phenomena are sufficient to justify the belief that persons might survive

their physical deaths but that it is not presently sufficient to warrant scientific acceptance of this belief. From this conclusion it will follow that parapsychological research on survival phenomena has not yet provided an adequate basis for a concurrence of scientific and religious opinion about the existence, nature, and survival of the soul.

I. The Intelligibility of the Survival Thesis

We must distinguish the claim that the survival thesis is false from the claim that the survival thesis is unintelligible. Many scientists, philosophers, and laymen knowledgeable of the progress of science believe that a large body of scientific data, especially neurophysiological data, provides considerable evidence that the survival thesis is false. The relevant evidence is that of the correlations between the existence and functioning of particular parts of the human brain and the occurrence of particular types of mental activity. For example, when the frontal lobes are severed from the rest of the brain, there results a deterioration of "superego" functions of the mind, and when the occipital lobes are destroyed, blindness results. Whether the survival thesis is true or false will be decided by scientific research. Whether the survival thesis is unintelligible is a philosophical issue, for it concerns our concepts of person and of mind, and an analysis of such concepts is a philosophical task. Indeed, philosophical analysis must show that personal survival is conceptually possible if scientists are to proceed rationally in trying to establish the truth or falsity of the survival thesis.

In this section I will examine the reasoning of some philos-

ophers who argue that the survival thesis is unintelligible. I will show that despite the arguments of these philosophers we can give sense to the survival thesis. Before turning to the arguments, I will make some preliminary comments about the survival thesis.

A. The Survival Thesis

The survival thesis is the claim that persons survive their bodily deaths. It is, for the purposes of this dissertation, a claim about personal survival as opposed to a claim about the survival of persons as entities that have lost their individuality and have, in some sense, blended into something like "the creative force" of the universe. The survival thesis, then, is the claim that persons (and we shall presume the reference is to all persons[1]) survive the deaths of their physical bodies as entities that retain their identity and individuality. This formulation of the survival thesis raises questions about what constitutes the identity and individuality of a person and what is the nature of a person as a surviving entity. We will now discuss both questions, taking the former first.

The concept of a person is in part that of an individual who must (1) be capable of being identified in the sense of being individuated, and (2) be capable of being identified in the sense of being reidentified. In order to understand the arguments against survival, we will need to discuss both types of identification.

Individuation is the identification of a particular person as a person at a particular time. It is the process of picking him out as an entity distinct and separate from other entities of his type and as an entity distinguishable from his environment. Of course in

practice we individuate living human beings (who are "persons" in the ordinary sense of this term) by identifying them in terms of their generic properties--living entities of particular shape and characteristic behavior. The identification involved in individuating living human beings is that of recognizing very general human properties.

Reidentification is the identification of a person as a particular person who existed at an earlier point in time. It requires the use of an identification criterion, the two possible types being the bodily criterion and the memory criterion. For example, Mr. X at time t_2, later than time t_1, can be identified by the bodily criterion as Snodgrass of t_1 if the two men have the same fingerprints. If Mr. X is trapped in a coal mine and his voice is distorted when he speaks through a tube to people on the land's surface, he can be positively identified by his wife as Snodgrass when he recalls in conversation with her the time they ran out of gas in the Mohave Desert and had to hitchhike back to town with two hippies in an old purple van.

For advocates of the intelligibility of the survival thesis it is an important fact about persons that they are psychophysical beings. In addition to having bodies, persons have minds, that is, distinct sets of personal memories and distinct sets of beliefs, desires, and dispositions. It is allegedly the minds of persons, or their souls, as I prefer to call them,[2] that survive the deaths of their physical bodies. And it is by means of the properties of minds, in particular the memories of which they are in part constituted, that persons who have survived are supposed to be capable of being identified.

Only if the mental properties of persons can be the means by which we can identify them as particular persons who were once alive will it be correct to say that the survival thesis is intelligible.[3]

We must make an important conceptual point here. It must be admitted by all parties to the debate about the intelligibility of the survival thesis that our ordinary concept of a person is that of a psychophysical being. It follows, therefore, that those who advocate the intelligibility of the survival thesis are not using the ordinary concept of a person when they say that persons can survive their physical deaths. These advocates must presume, it seems to me, that what is most essential about a person is his mental properties. To put it differently, they must presume that the "real" person is the mental aspect of a psychophysical being. This presumption is clearly operative in the writings of such philosophers as Plato and Descartes. Plato was firmly fixed in his belief that the soul is that which can have, and should have, control of the body much as a pilot controls a ship. And when the ship sinks, the pilot can safely swim to shore. Descartes made the presumption even more explicit when he identified a person with his mind and declared that the body of a person, for all one may know (prior to the assurance that God does not deceive him), might not even exist.

Those who argue that the survival thesis is intelligible are often dualists like Descartes. This fact suggests a further question, in addition to those about the intelligibility of the survival thesis and the possibility of identifying souls, namely, what is the nature of souls? Survivalists (those who believe the survival thesis is true)

have quite often asserted that the soul is an immaterial substance. This is not, however, the only possible answer. Souls might also be just "bundles" of mental events, as Hume thought. Futhermore, as I said in the preceding chapter, souls might be physical in an unusual but acceptable sense. As I will point out in the next subsection, if souls are physical in this sense, then the proposition that they survive would be verifiable and therefore intelligible.

B. Arguments Against the Intelligibility of the Survival Thesis

It is crucial to understand that the major arguments against the intelligibility of the survival thesis are arguments against the intelligibility of the claim that persons might exist as immaterial entities. If souls were physical in the sense that they could be scientifically investigated (as opposed to being physical in the narrow sense of being composed of observable matter), then it would be in principle possible for observers to individuate them from other physical entities and to reidentify them from time to time by reference to their physical properties. The first argument we will examine turns clearly on the issue of immaterial existence; the second argument (rather, line of argumentation) is focused on the question of what criteria of personal identity are acceptable. Let us turn to the first argument.

A. J. Ayer, the noted positivist, early in his career said:

> To say that there is something imperceptible inside a man, which is his soul or his real self, and that it goes on living after he is dead, is to make a metaphysical assertion which has no more factual content than the assertion that there is a transcendent god.[4]

By "imperceptible" in this context Ayer meant, I believe, "immaterial."

If something is imperceptible, then its existence can be neither confirmed nor disconfirmed; it would not even be possible in principle to show that such an entity does or does not exist. Since Ayer, at the time he gave the above argument, believed that only propositions that are in principle confirmable or disconfirmable are sensible, he concluded that the assertion that immaterial souls exist and survive physical death is nonsensical.

An obvious retort to Ayer's argument, it seems to me, is that the word "confirmation" is ambiguous--it can mean "intersubjective confirmation" (the sense in which Ayer seems to take it) and it can mean "subjective confirmation." We may suppose that if a proposition is subjectively confirmable then it is intelligible. And we may suppose, further, that not all propositions that are subjectively confirmable are also intersubjectively confirmable by the objective "perceptual" methods presumed available by Ayer in his use of "confirmable." For example, "I am conjuring up an image of the Taj Mahal," is subjectively confirmable in the sense that its truth is directly evident to the person doing the imagining; but it is not intersubjectively confirmable by a peculiar sort of inspection of a person's mind, an inspection others would carry out in order to "intersubjectively confirm" that the imager had imagined the Taj Mahal. Similarly, if a person were an imperceptible soul, he might subjectively confirm his survival whereas it would be impossible in principle to confirm intersubjectively his survival by discovering that his soul exists in a disembodied state.

In a later work Ayer seems to concede this point. He says:

> Could one not imagine circumstances in which there would be reason to say that one existed without a body? Suppose, for example, that, after a period of unconsciousness, one awoke to find things appearing much as they did before, except only that one's body seemed to have vanished from the scene. One would not perceive it in any way at all, and other people, whom one would still be able to observe, although one could not make one's presence known to them, would show by their behaviour that they did not perceive it either: one would observe that they acted as if one were dead. Would it not be reasonable in such a case to conclude that one had somehow survived one's death?[5]

What Ayer is saying here is that personal survival is intelligible in the sense that it is imaginable. However, for a positivist like Ayer, this amounts only to saying that the concept of personal survival is not self-contradictory. To be intelligible in the sense that a positivist desires to use the word "intelligible," personal survival must be confirmable. Ayer seems ready to concede that subjective confirmation is a possible means by which personal survival could be confirmed and to concede also that, if it were confirmable subjectively, then the concept of personal survival would be an intelligible concept. He sees, however, a problem here. As he says further on,

> when it comes to the possibility of a person's continuing to exist in a disembodied state, a . . . difficulty arises. For here we have to find a criterion not only for our subject's being the same person as one who is physically identified, but for his being a person at all. We have to make sense of saying that someone exists without a body, before we can raise the question whether he is the same person as one who existed with a body.[6]

Ayer then discusses memory as the criterion for establishing the identity of a disembodied person. He reasons that it could not be a sole sufficient criterion, and from this he concludes that the concept of a disembodied person is apparently not intelligible. His general line of argument is supplemental to his original rather bald

positivistic argument. Terence Penelhum and Antony Flew, two analytic philosophers, have both developed Ayer's supplemental line of argument, and I wish to respond to some of their analyses in what follows.

Antony Flew says that the basic difficulties in developing a "coherent concept of an incorporeal being" are

> to provide a principle of individuation by which one such being could, at least in theory, be distinguished from another such being; and, second, to provide a principle of identity to permit us to say that one such being at a later time is the same as that being at an earlier time.[7]

So the line of argument against the intelligibility of personal survival consists in showing that no satisfactory principles of individuation and through-time identity can be provided for disembodied persons.

Let us review in detail Flew's argument against the possibility of providing principles of individuation and of through-time identity for incorporeal persons.[8] Flew suggests that there are two possible models for such incorporeal beings. There is the Cartesian model according to which minds or souls are incorporeal spiritual substances to which the experiences of particular individuals are attributed, and there is the Humean model according to which minds or souls are not substances but are only the series of incorporeal experiences of persons. We will examine the difficulties facing the Cartesian model first, and then we will examine those facing the Humean model.

Flew says that if we can accept the Cartesian model of an incorporeal person as an incorporeal substance to which experiences are attributed, then we will have suitable principles of individuation and of through-time identity for incorporeal persons. Incorporeal

persons would be individuated by reference to the substances to which their individual experiences are attributed, and they would be identified through time by reference to these same substances, which are characterized as remaining self-identical through time while their experiences constantly vary. Flew doubts, however, that we can reasonably accept the Cartesian model of an incorporeal person. As Flew sees it, the problem with the model is that we can give no "positive characterization . . . to these postulated incorporeal substances." We cannot "say anything to differentiate such an incorporeal substance from an imaginary, an unreal, a nonexistent substance."[9]

I agree with Flew that we can make no clear sense of the notion of substance required by the Cartesian model of incorporeal persons and that without a suitable notion of substance the Cartesian model is not satisfactory. I believe also that we should take a moment here to see why dualistic survivalists like Descartes and Locke thought they needed the concept of incorporeal substance in order to have a suitable model of an incorporeal person. This examination will also aid us in our later analysis of Flew's arguments against the Humean model of incorporeal persons.

It seems probable that dualistic survivalists like Descartes and Locke conceived persons as immaterial substances not only to show how they might be individuated but also to show how they could be considered to be the same despite the changes they undergo. The problem they thought they faced was that of how to account for the fact that an entity, such as a ball of wax, remains the same entity even though it undergoes radical changes, such as turning from hard to soft, losing

its redolence, and changing its color whenever heated. This so-called problem of unity has been analyzed well by Terence Penelhum.[10] Penelhum concludes, correctly I believe, that the problem is specious. He points out that we do not need any "thread" to tie together into a unified whole the series of events constituting a thing. All we need in order to identify a man, or anything else, as the same from one time to the next is the ability to recognize the "characteristic patterns of sequence in things." We know that an oak tree grows from an acorn; it is the same tree during all its transformations. We know that a human being is first an infant, then an adult, then an aged individual; he is the same human being during all his growth and transformations. Penelhum says that Hume, therefore, was simply wrong when he said that "strictly speaking" any change or alteration in an object, no matter how small or inconsiderable, destroys its identity.[11] Hume's error was caused by his failure to apply the concepts of numerical and comparative identity properly. We speak of an object as numerically identical from time to time despite changes it undergoes. We speak of two objects, such as two steel bearings, as comparatively identical if they are the same in qualitative detail. Of course a single object can be comparatively identical from moment to moment if it undergoes no changes. When it undergoes characteristic changes, however, it is only numerically identical from one time to another time.

The conclusion to be drawn from these comments on the concepts of substance and identity is that the concept of substance is not needed in order to account for the fact that we identify objects as the same from one time to another despite the changes they undergo.[12]

Let us turn now to Flew's remarks on the Humean model of incorporeal persons. Flew first asks whether it would be possible to individuate incorporeal persons of the Humean type, that is, persons who are simply series of experiences that occur independently of the existence of incorporeal substances. Flew answers as follows:

> Any experience requires a substance to be the experience of in exactly the same way that a grin requires a face to be the grin of. Since it makes no sense to talk of a pain or a joy or any other sort of awareness without an owner, the Humean suggestion that a person might simply and solely consist in a collection of such "loose and separate" experiences must be rated as, strictly, nonsense.[13]

These are rather strong words by Flew, and I believe that they possibly embody an error. It is not obvious that "any experience requires a substance to be the experience of." Flew's remark seems to be a petitio principii. He assumes, in essence, what he is trying to prove--that incorporeal experiences must be experiences of incorporeal substances. I believe, against Flew, that we can make good sense of an experience occurring without its being the experience of an incorporeal substance. As our above discussion of the concept of substance showed, we do not need this concept in order to identify objects over periods of time. Through-time identification requires only that we be able to recognize characteristic patterns of change in objects. Material objects can be viewed as series of material events that are not changes in the properties of material substances. And immaterial "objects" can be viewed as series of immaterial events that are not changes in the properties of immaterial substances. Even though it appears that we can make sense of incorporeal experiences occurring independently of incorporeal substances, it might be thought

that Flew makes his case against the Humean model by specifying that an experience requires an owner. But this is precisely where Flew errs, in my judgment. An owner of an experience does not have to be a substance; the owner of an experience can be simply that series of experiences that together constitute that incorporeal person. Now the question of whether a series of experiences occurring independently of a substance can be an incorporeal person brings us to the problem of providing a principle of through-time identity for incorporeal persons of the Humean type. Against Flew I will argue that we can find a suitable principle of through-time identity for such persons, but before turning to that issue I want to bring to a close the discussion of the difficulty in providing a principle of individuation for Humean incorporeal persons.

As our analysis so far of Flew's remarks about individuating incorporeal persons of the Humean type shows, Flew tends to reduce this problem to the problem of finding a principle of through-time identity for incorporeal persons. Insofar as he addresses the problem of individuation at all in his somewhat obscure argumentation, he seems to say that the notion of individuation of incorporeal experiences is nonsense unless incorporeal experiences are experiences of substances. (And he subsequently argues that the notion of immaterial substance is not clearly intelligible.) But is the notion of individuation of incorporeal experiences nonsense unless the experiences are experiences of substances? I believe that possibly the notion is not nonsense. We easily individuate immaterial entities such as mathematical concepts without referring to mathematical "substance."

And such individuation makes sense even though it is not the same as individuating material objects by picking them out from their surroundings. It certainly is not obvious that we cannot individuate incorporeal experiences simply by referring to what those experiences are and to how they differ from other experiences. The referring would be analogous to our individuation of numbers by referring to their properties and their relationships with other numbers. Flew seems to have failed to show that we can make no sense of individuating incorporeal experiences.

Flew seems to believe that, even if it makes sense to say that we can individuate incorporeal experiences, the Humean concept of an incorporeal person still cannot be shown to be intelligible. Flew argues that the only available principle of through-time identification for such persons is the principle expressed in terms of memory, and that this principle cannot serve as the sole criterion of through-time (or personal) identity for incorporeal persons. Flew says that

> if I truly remember, and do not merely seem to remember, doing the deed, then necessarily I must be the same person as did that deed: true memory thus presupposes true personal identity. But what I remember is that I am the same person as did the deed. That I do so remember is not what it is for me to be the same person as did it.[14]

A. J. Ayer, who takes the same side as Flew on this issue, puts the point slightly differently when he notes that remembering is a kind of experience. Ayer says that

> we cannot talk of experiences without implying that they have owners. And then we seem to involve ourselves in a circle when we make the existence of persons consist only in a certain relationship [memory] between experiences.[15]

These remarks by Flew and Ayer show, I believe, that memory cannot be used to define personal identity, because true memory presupposes personal identity. This fact, however, is not as damaging as some philosophers seem to think. Flew would have us believe that, since memory cannot be that in terms of which personal identity is defined, therefore memory cannot be the sole sufficient principle by which persons are identified. I think that Flew and others like him (such as Penelhum) use too strong a sense of "criterion" when they evaluate possible types of criteria of identification. They look for a deductive relationship when they ought to be satisfied with a principle of identification that simply works in practice.

I would argue this point as follows. If the requirement that the satisfaction of the memory criterion entails the identification conclusion is insisted upon, then no attempt to establish a person's identity will be immune to the skeptic's challenge. To see this, consider the bodily-identity criterion, satisfaction of which must entail an identification conclusion if the concept of "criterion" is used in the deductive sense. Suppose the police conclude that Snodgrass is the person who killed Cock Robin, their evidence being that Snodgrass's fingerprints are the same as those of the murderer of Cock Robin. The skeptic (strange bird that he is) can say, "Well, maybe Snodgrass, for some bizarre reason, underwent a fingertip transplant prior to his arrest such that his fingerprints are now identical to the murderer's (what pathetic luck Snodgrass has!) but were not identical to the murderer's at the time of Cock Robin's demise. Suppose also that the excellent surgeon who did the transplant operation left no scars or

other evidence of the operations on Snodgrass's fingertips. It would then be possible for Snodgrass not to be Cock Robin's murderer even though the police conclude correctly, according to the bodily-identity criterion, that Snodgrass is Cock Robin's murderer." The skeptic's challenge shows that the conclusion that Snodgrass is Cock Robin's murderer is not true beyond all possible doubt. But it would _have_ to be true beyond all possible doubt if it followed deductively from Snodgrass's satisfaction of the bodily-identity test of personal identity used in this case.[16] A skeptic could similarly challenge the use of _any_ bodily-identity criterion of personal identity.

It seems, then, that it is not possible to demonstrate conclusively that two persons existing at different times are the same person. It is pointless, therefore, to assume that a criterion of personal identity must _entail_ an appropriate identification conclusion. What is required in attempts to determine a person's identity is not absolute proof but only adequate evidence. We have no doubt that Snodgrass, since he has the murderer's fingerprints, killed Cock Robin. (We do not seriously entertain the skeptic's strange challenge.) Similarly, we have no doubt, when a person makes appropriate memory claims, that he is the person he believes he is. Of course, in extraordinary cases of severe mental aberration, we do doubt a claimant's memory statements. Such cases, however, are rare and easily identified; we usually accept memory claims as adequate for establishing personal identity.[17] Our conclusion, therefore, is that we should consider the word "criterion" as naming a relationship weaker than a deductive one between evidence and conclusion and perhaps one

stronger than an inductive relationship.

In fairness we should mention that Penelhum seems to recognize this point when he says:

> Even though the fact that memory entails personal identity prevents us from defining one in terms of the other without a circle, it is still possible that we may sometimes know that a person remembers without having previously checked on his identity. If this were not so, then memory could not serve as a criterion, for it is an additional part of the notion of a criterion, as all philosophers have used the term, that it can be applied.[18]

Part of what Penelhum seems to say here is that we can identify a person by the memory criterion alone even though we do not know beforehand the person's identity. In other words, we can use the memory criterion in practice. In my opinion, this is all we need to be able to do in order to show that disembodied survival is an intelligible notion.[19] We do not need to show that personal identity can be defined in terms of memory. This same point is expressed by saying that there is no problem of unity for the mind just as there is no problem of unity for material bodies. We do not need a uniting principle for the mind. Just as we can identify a material object as the same when we are aware of its characteristic patterns of change, so also can we identify a particular mind as the same when we know, at one time, the persistent memories, dispositions, beliefs and so forth which constitute that mind and are made aware, at a later time, of the continued existence of those constituents (as when the mind manifests itself through a living human body).

The conclusion I draw from this discussion of the problems of providing principles of individuation and identity for disembodied persons is that the problems are resolvable. A survivalist does not

need to rely on the concept of substance in order to support his contention that the survival thesis is intelligible. A survivalist need merely argue that a disembodied person might consist of a series of incorporeal experiences. He can argue that it appears reasonable to say that such persons can be individuated by referring to the experiences which constitute them and that such persons can be identified through time if memory is accepted as a sufficient sole criterion of personal identity. His proper conclusion regarding the arguments of anti-survivalists such as Flew, Ayer, and Penelhum against the intelligibility of disembodied survival is that their arguments do not disprove the intelligibility of the survival thesis.

As I pointed out earlier, even if the arguments of the dualistic survivalists are not accepted, the survival thesis can still be considered intelligible if we simply agree that the soul is physical in the acceptable scientific sense that it is capable of being spatio-temporally located and identified by its physical properties. In this context the term "physical" need not be used to refer only to types of material entities so far studied by scientists. It can be used to refer to any sort of theoretical entity that might be postulated by the creator of a scientific theory designed to explain, among other things, the various types of survival phenomena.

It will be instructive, I believe, to examine briefly now two recently devised theories of the mind which treat the mind as "physical" in an extended sense of the term. This will give us a clearer idea of how theoretical parapsychologists might someday create a scientific theory of the soul that would be satisfactory to adherents both

of the scientific world-view and of certain religious world-views.

II. Two Scientific Theories of the Nature of the Soul

Throughout history philosophers and theologians have theorized about the nature of the soul, almost always saying it was beyond the range of empirical investigation. Scientists have usually agreed that souls (if any exist) are supernatural and therefore beyond the compass of scientific theorizing and experimentation. Recently, however, some scientists have offered their speculations on how best to conceive souls so that they can in principle be brought within the explanatory framework of science. In this section I will describe the theories of J. R. Smythies, a psychiatrist and philosopher, and Elmer and Alyce Green, two biofeedback researchers.

Smythies, following a theoretical suggestion made some years ago by C. D. Broad,[20] has developed a multiple-space theory which assumes the intelligibility of non-Cartesian dualism. Smythies explains the difference between Cartesian dualism and non-Cartesian dualism as follows:

> Cartesian dualism stated that the world consists of the physical universe extended in space and a number of individual minds not extended in space. Non-Cartesian dualism suggests that the world consists of the physical universe extended in physical space and a number of substantive minds extended each in a space of its own. The totality of each individual consciousness (composed of sense-data, images, thoughts, and the Ego) is located in its own space-time system, a <u>different</u> space from that of the physical world.[21]

By "physical universe extended in physical space" Smythies means the "one four-dimensional physical space-time" of modern physical theory. When physical space-time and the many individual space-times are joined, they

> form one single n-dimensional space-time continuum. One cross-section of this is physical space-time and other cross-sections are mental space-times. Thus when we look at a man's brain and ask, 'Where is his (substantive) mind? (his sense-data, images, Ego, etc?),' the answer may be 'In another space higher-dimensional relative to the space in which his brain is'.[22]

We can represent this n-dimensional space-time continuum, and thereby perhaps understand it better, by letting it correspond to regular three-dimensional space. For simplicity, let us represent the n-dimensional space-time continuum as a cube. Physical space-time would then be a plane, one axis of which would be the temporal dimension, and a human brain would be a rather elongated spot in that plane (elongated because it is roughly the same size in each spatial dimension but rather "long" (exists a long time) in the temporal dimension). A mind would be an area in another plane in the cube parallel to the plane representing physical space-time with the brain in it. The ego and sensory fields of a person would thus be in the mind plane and outside (above or below) the plane of physical space-time. The interaction of mind and body would be represented by vectors in a plane intersecting at right angles both the brain plane and the mind plane.

Smythies attempts to convey an intuition of how such a physical arrangement could exist by having us compare ourselves with the inhabitants of Flatland--a two-dimensional world (a plane) described by the fiction writer E. A. Abbott. The inhabitants of Flatland have evolved, so the story supposes, in a two-dimensional world. They have, therefore, no intuition of three-dimensional reality and they are never aware of events in planes parallel to their own. Now suppose, says Smythies, that we are like Flatlanders except that we are dualistic beings. Our minds are in one plane and our bodies are in another plane

and the interaction between mind and body is via a third plane intersecting both the others. Now if, Smythies goes on, the events in the mental plane are arranged to represent events in the physical plane "in the manner described by representative theories of perception," then we will think we are moving around in the physical plane (which corresponds to our three-dimensional world). We would have no idea of the mental plane and the intersection (communication) plane. If we take a naively realistic attitude towards our sensory fields, we will assume they give us a direct view of the physical world rather than a mediated or TV-like view conducted by a mechanical system from the brain in the physical world to the sensory field in the mental plane via the intersection plane.[23]

A significant fact about Smythies' theory is that it gives the mind a physical status, and therefore it is possible by this theory to include studies of the mind in scientific research. As Smythies puts it,

> it is conceivable that a topological analysis of the properties of the different arrangements of more than one 4-space-time into common manifolds, plus a physical analysis of what causal interactions between these systems might be like (looked at from one such system alone and without access to the other nor to the interface between them) may lead to predictions that could be verified by experiment.[24]

Elmer and Alyce Green, two prominent biofeedback researchers, have recently advanced what they call a "field-of-mind" theory of the mind.[25] According to their proposal the mind of a person is part of a field of mind that "surrounds our planet."[26] A person's mind, therefore, is more than just his body; however, a person's mind and his body are not different types of substances, as Descartes would have it, but

are, rather, parts of a single mind-body continuum. This theory can best be explained by discussing some of the Greens' research and the theoretical considerations that drove them to produce this theory.

As biofeedback researchers, the Greens have shown that people can learn to have conscious, voluntary control over physiological processes that normally are controlled by the autonomic nervous system. The learning of such control has enabled many patients to cure themselves of disorders such as migraine headaches and alcoholism. The Greens' training technique consists essentially of giving patients direct feedback about autonomic processes related to their disorder and then instructing them to relax mentally and visualize modification of those processes. The patients are instructed to exercise "passive" volition, that is, the exercise of mental control over internal bodily processes while relaxing, using no exertion typical of "active" volition. Feedback is given as the relevant physiological process changes. For example, with migraine headaches the usual cause is excessive blood flow in the scalp, which puts pressure on nerves in the scalp. The migraine is alleviated by having the patient learn consciously to <u>will</u> the blood flow in his hands to increase. When it does increase, the flow of blood to the head decreases, the pressure on the nerves decreases, and the migraine disappears (provided that the particular migraine was caused by pressure on the nerves in the scalp).

The Greens have also examined in their laboratory individuals with unusual powers of self-regulation of bodily processes. An Indian yogi, Swami Rama, "demonstrated voluntary control of his heart by causing it to cease pumping blood for 17 seconds, putting it in a condition

of atrial flutter."[27] Jack Schwarz, a psychic from Holland,

> demonstrated that he could stop the bleeding of wounds from a knitting needle driven through his biceps (in two seconds after he said "now it stops"), and that he could prevent bleeding entirely from such wounds. He also demonstrated "pain control" by showing no significant physiological responses . . . in three trials when burning cigarettes were held against his forearm for as long as 25 seconds.[28]

The explanation given by both Swami Rama and Jack Schwarz of their abnormal abilities amounts to the proposition "All of the body is in the mind, but not all of the mind is in the body."[29] The complete explanation is based on a yogic theory of mind-body relationship. According to this yogic theory of mind, the Greens report, the brain and the mind both exist at the level of the physical, but the mind also exists at six higher levels. These seven levels constitute an ascending order of dimensions in terms of relative "fineness" or "density" of substance: the lowest level is the "densest" and is matter as we know it; the highest level is the most "rarefied" on this mind-spirit continuum of substance and is called "supermind." In the higher dimensions the minds of humans apparently spread out from their localized bodies, for the Greens say that in these higher dimensions, called the "transpersonal level," the minds of people unite to form a "field of mind" which "surrounds our planet, even as a gravitational field, a magnetic field, and an electrostatic field do."[30]

The Greens formulate this theory because it offers an attractive explanation of volition. With the theory, they say,

> it is possible to conceptualize volition as the extension of energy from a higher existential level . . . consciously into activities of a lower level. Thus, each level becomes a metaforce "source" for the level immediately below.[31]

We may note in passing that this theory bears a close analogy to the libertarian solution of the free-will problem. (Indeed, the Greens see the relevance of their theory to that problem.) The libertarian solution postulates that free acts have their sources "outside" the deterministic three-dimensional world of physical reality. Now the higher levels or dimensions of the Greens' theory are "outside" physical reality in this sense: physical reality, as presently treated by science, is only the lower level of the Greens' multi-leveled universe. Although all the levels of the Greens' universe are, we may suppose (the Greens do not make this point clear), within the four-dimensional space-time universe, the upper levels in which higher mental functions (self-consciousness, deliberation, etc.) are localized are presently beyond the range of scientific instrumentation and therefore "outside" the physical world as presently capable of being measured. When a human being exercises free will, that part of his mind "outside" the physical world intrudes as a metaforce upon the atoms and so forth of physical reality to effect the decision that the person makes.

The Greens' theory, as they present it in metaphorical terminology, will no doubt appear to readers accustomed to operational definitions and precise quantification in science as completely lacking in potential for experimental verification. Their theory, however, is only a speculative venture designed to provoke more extensive development by theoretical physicists. Should such development occur, the Greens' theory may prove to have been the starting point, vaguely drawn, for an important scientific advance.

For our purposes, the value of the Greens' theory is that it gives us another scientific model of the soul. When the Greens speak of a field surrounding the earth, a field which is too "subtle" to be experimentally investigated yet by scientists, we may suppose that they mean that the field of mind is in the four-dimensional space-time world, despite their talk of a "multidimensional" universe. (If they use the term "multidimensional" in the mathematical sense used by Smythies, then there would be, it seems to me, very little difference between their theory and Smythies'.) And if the field of mind is in the four-dimensional space-time world, then we may suppose that <u>in principle</u> it can be investigated directly by scientists once they have developed the appropriate experimental techniques (assuming they do not run up against a limiting principle like that of the Principle of Indeterminacy).

There is a fundamental contrast between the theories of the Greens and Smythies. Smythies views souls as outside the four-dimensional space-time continuum; the Greens view them as within it. For Smythies, souls are, in a sense, nonphysical, because from the usual scientific point of view physical reality lies completely within the four-dimensional continuum. Now this highlights a basic similarity between Smythies' theory of the soul and Descartes'--both men view the soul as outside the material world. The difference in their theories, as Smythies pointed out, is that Smythies believes that higher dimensions of reality are within the scope of scientific investigation, whereas Descartes thought that whatever is outside the physical world, no matter how that which is "outside" the physical world be conceived,

is beyond the reach of the physicist (but not beyond the reach of rational inquiry). If Smythies is correct in his view of the soul and science, then souls are "physical" in the broad sense that they are subject to scientific study, despite their being outside the familiar physical world--the four-dimensional universe.

The Greens, if I understand them correctly, take the four-dimensional universe as constituting the whole of reality. For the Greens, however, much of reality has not been scientifically studied. The primal field, the field of mind, out of which gravitational and electromagnetic fields are "condensed," has not yet been brought within the scope of science. Now if I may interpret the Greens' theory a little further, souls are, apparently, certain centers of activity within the field of mind. And just as the field of mind is an energy field, more basic than any field known to physicists and yet in principle subject to empirical study, so also are souls subject to empirical study. Being within the four-dimensional world, souls are physical in the traditional sense that they are in space and time. It is, then, the difference in the Greens' and Smythies' views of the nature of the soul and of the limits of reality that marks the fundamental contrast between the Greens' theory and Smythies'.

The theories of Smythies and the Greens seem to me to represent examples of two fundamentally different ways to conceive the locus of souls: souls are either within physical space-time or outside it. I would suggest, therefore, that the Greens' theory is similar to theories of the soul which view the soul as an astral body, a body of extremely "fine" or "rarefied" matter located within the physical world.

And Smythies' theory is like that of Descartes and many theologians who view the soul as nonmaterial, as a spiritual entity outside the physical world.

In the remainder of this chapter I will treat the "astral body" view and the "spirit" view as the two basic ways we can conceive souls. So as I evaluate survival phenomena, I will use these two conceptualizations of the soul as reference points to help give sense to the survivalists' interpretation of the phenomena.

III. Evaluation of Survival Phenomena

In this section I discuss the approach I will take to the evaluation of the various types of survival phenomena as evidence of personal survival. The actual evaluations will be made in the following two sections. My approach to the evaluation of survival phenomena consists in asking with respect to each type of survival phenomena whether it provides the basis for a positive response to two basic questions, namely, "Do instances of this type of survival phenomena generally constitute evidence of manifestations of surviving souls?" and "Are instances of this type of survival phenomena generally more plausibly explained by the survival hypothesis than by other possible alternative explanations?" Let us discuss each of these questions in turn.

A. Manifestations of Surviving Souls

A human mind is complex. It consists not only of a stream of particular mental occurrences such as thoughts, recollections, and feelings, but also of the capacities for undergoing these experiences,

namely, the capacity to think, the capacity to remember, and so forth. Now as C. D. Broad has pointed out, if survival of minds occurs, what actually survives might be only certain capacities rather than a stream of personal experiences.[32] Perhaps experiences occur for a surviving mind only when it appropriately interacts with the world, as when it communicates through a medium. Broad's observation is well taken. However, for the purpose of the following analysis, I will assume that if personal survival occurs, then surviving minds not only retain the various capacities they had when embodied but also continue to have personal experiences similar to those they had when they were embodied. This assumption might entail that surviving minds must hallucinate a world, and perhaps even a body, in order to have experiences like those they had when they were embodied. The problem of precisely how to picture the world of surviving souls is one that I wish to avoid completely. In what follows I will concern myself only with the task of showing how we can evaluate survival phenomena as evidence for the survival of particular minds still engaged in the sorts of mental activity they were engaged in before death.

We must determine, then, what aspects of a surviving soul could be manifested so that we would be willing to say that a particular person had survived. Since we are concerned with personal survival, particular memories of a surviving person, revealed in sufficient numbers or specificity, would be sufficient for us to judge with some assurance that he is the same person as a formerly living person.

There are other aspects of a mind which, if manifested, might collectively serve as a criterion independent of memory for our judging

that a particular person has survived. These are the dispositions of a mind with respect to expressing certain beliefs, exercising certain mental skills, engaging in certain patterns of thinking, or exhibiting certain emotions in particular situations. (These dispositions are the basis for what we call a living person's personality.) It would not be so easy to make positive identification of a surviving person by reference to his dispositions as by reference to his memories, simply because dispositions generally do not serve to specify persons as precisely as do memories. Compare, for example, Snodgrass's saying, "I remember when I climbed Mount McKinley with Robert Kennedy," and Sturdley's saying, "I am inclined to jump whenever I hear a loud, sudden noise." Nevertheless, it seems clear that dispositions collectively might serve as an independent criterion of personal identity for some surviving persons, or, if not as an independent criterion, then as an auxiliary method of identification for all surviving persons.

It seems to me that there is one more aspect of a surviving soul which could be manifested in appropriate circumstances and serve as a sign of its survival, namely, its capacity to entertain goals and then engage in activity designed to achieve them. Any survival phenomena which can be interpreted as resulting from the purposeful activity of a surviving soul will serve as evidence of survival.

B. Explanations of Survival Phenomena

Since survival phenomena are events of the natural world, they call for an explanation. Survivalists maintain that survival phenomena are best explained in terms of the interaction of surviving souls and objects or persons in the physical world. From the point of view

of survivalists, survival phenomena are evidence that persons survive death. Anti-survivalists (persons who do not accept the survival thesis) believe that survival phenomena do not constitute evidence that persons survive death. They maintain that survival phenomena are best explained in terms of known natural processes and, if needed, the assumption that remarkable psychic ability is occasionally exhibited by some living individuals.

In order to decide for each type of survival phenomena whether it is best explained by the survival hypothesis or by a this-worldly hypothesis, we must, first of all, spell out the this-worldly hypothesis and, additionally, search for possible counterexamples which weigh against the survival hypothesis. These counterexamples will be particular instances of the type of survival phenomena in question for which it is clear that the survival hypothesis does not provide an explanation that is at all plausible. If we find suitable counterhypotheses and counterexamples to the survival hypothesis, then the plausibility of that hypothesis for explaining a particular type of survival phenomena will be diminished considerably.

IV. Survival Phenomena Viewed as Manifestations of Surviving Souls

We proceed now to the first step in the evaluation of survival phenomena as evidence of personal survival. In this section we will determine to what extent the various types of survival phenomena can be viewed as manifestations of surviving souls. As we will see, some types of survival phenomena can be viewed as manifestations of unidentified surviving souls, while other types, apparitions and mediumistic

communications in particular, can be viewed as manifestations of identifiable surviving persons.

Let us begin with poltergeists. A poltergeist outbreak may include such things as movements of objects, raps, and flickering of lights, but these physical phenomena do not include any expressions of memories. They can be viewed as expressions of certain childish dispositions, such as, for example, a proclivity to engage in mischief or to throw temper tantrums by knocking objects about. The interpretation of poltergeists as expressions of dispositions of invisible entities, rather than as bizarre physical occurrences with mechanical physical causes, would be farfetched were it not for the fact that quite often there is some indication of a purpose guiding the poltergeist outbreak. This suggestion of purposiveness surely goes far in explaining the common interpretation of poltergeists as the work of "noisy spirits." Consider, for example, the Derrygonnelly case, personally witnessed by Sir William Barrett, Professor of Physics in Dublin. The case is reported in the Proceedings of the Society for Psychical Research:

> The cottage in which these phenomena were observed was an isolated farmhouse occupied by a grey-haired farmer who had recently lost his wife, and a family of four girls and one boy. The youngest was about ten years of age, and the eldest, Maggie, round whom the disturbances centered, was about twenty. The noises generally began after they had retired and often continued all through the night. Rats of course were first suspected, but when objects began to move without any visible cause, stones to fall, candles and boots repeatedly thrown out of the house, the rat theory was abandoned and a general terror took possession of the family. Several neighbors urged them to send for the priest, but they were Methodists, and their class leader advised them to lay an open Bible on the bed. This they did in the name of God, putting a big stone on the top of the volume; but the stone was lifted off by an unseen hand and the Bible placed on top of it. After that, 'it', as the farmer called the unseen cause, moved the Bible out of the room and tore seventeen pages right across. . . .

> On two successive evenings following this, Sir William Barrett with Rev. Maxwell Chase, Mr. Close, and Mr. Plunkett again heard these manifestations. Barrett said that the entity would, at request, respond by the correct number of raps to a number of which he thought. Four times, with his hands in his overcoat pocket, he asked for the number of fingers which he had extended--and this was indicated correctly by the raps.[33]

The apparent existence of a purposeful and perhaps even intelligent invisible force behind some poltergeist outbreaks does permit survivalists to view poltergeist outbreaks as evidence of survival. But survival of what? Perhaps of deceased individuals who are trying desperately hard to bring attention to themselves. This is surely a generous interpretation, but, even if it should be correct, there remains a problem with the interpretation of poltergeists as evidence of personal survival, because poltergeists do not give any clear indication that a particular person has survived. To constitute evidence that a particular person has survived, a poltergeist outbreak would have to provide signs indicative of the personal memories or distinctive set of dispositions of a certain individual; but it seems clear that the typical physical phenomena of a poltergeist outbreak cannot provide such signs.

We turn now to out-of-the-body experiences. The experiencer of an OOBE reports that his consciousness seemed normal during the experience, that he seemed free of gravity, that he perceived objects, often including his physical body, from abnormal heights, and that he traveled easily to many distant places. Undergoing such an experience would surely stir a person greatly. According to Charles Tart,

> the effect on a person of having an OOBE is enormous. In almost all cases, his reaction is approximately, "I no longer believe in survival after death--I know my consciousness will survive death because I have experienced my consciousness existing outside of my physical body."[34]

Despite the convincingness of OOBE's (to those who have them) regarding survival of death, the inference from the proposition that OOBE's occur to the proposition that persons survive death is fallacious. Even if, during an OOBE, a person's soul does travel outside his body, this shows only that a soul can exist outside the living body with which it is associated, not that it can exist independently of that body after the body's death. Nevertheless, we can appreciate the suggestiveness of OOBE's: if our souls (assuming we have souls) can exist outside our living bodies, then this fact suggests the possibility that our souls can exist independently of our dead bodies.[35]

From the subjective viewpoint of the experiencer of an OOBE, it seems that such an experience constitutes very good evidence for the truth of the survival thesis. But to evaluate these experiences objectively, in the manner a scientist tries to treat any sort of phenomenon, we must ask whether OOBE's satisfy our criteria of evidence for personal survival. The answer is that they do not. They are not manifestations of the souls of deceased individuals, and, since they are totally subjective experiences, they provide us with no evidence of the memories, dispositions, or purposeful activity by which we might identify a surviving soul. It appears, therefore, that OOBE's support the survival thesis only with the seemingly slight strength of the argument: if souls can exist outside the living bodies with which they are associated, then they can exist independently of those bodies when those bodies die. This argument is weakened by the fact that there is no obvious way to prove that OOBE's are genuine extrabodily journeys of souls. They might be what they appear to be to those who experience

them, but they might not be. Specific counterhypotheses to explain OOBE's will be discussed in the next section.

Let us now consider apparitions. If apparitions are to be evidence of survival, it must be assumed that they are either astral bodies made visible[36] or the products of spirits (souls existing outside the four-dimensional physical world). Since apparitions are things that appear <u>as</u> living human beings, it seems that by their very nature they can satisfy our criteria of personal identity. Obviously, since they appear <u>as</u> living, embodied persons, they seem to satisfy the usual physical, as opposed to mental, criteria of identity. Of course the apparitions cannot be physically examined and, say, fingerprinted, as real bodies can. Nevertheless, because of their very clear and lifelike appearance, persons who see them identify them immediately, and they identify them on the basis of a physical criterion, namely, distinctive bodily appearance. We know, however, that apparitions are not living physical bodies, so the conclusion that they are the persons they appear to be does not follow from their "satisfaction" of a bodily criterion of personal identity.

Since we are concerned with identifying surviving souls whom we know no longer have flesh-and-blood bodies, we must see whether apparitions satisfy the mental criteria of personal identity. If they speak, then they can make memory claims by which they can be identified as particular persons. If they act like human beings, then they can display dispositions distinctive of certain individuals. And if they act purposefully and intelligently, then they can be viewed as retaining important mental characteristics of living persons. Admittedly,

it is not correct to infer from the fact that an apparition satisfies certain criteria of personal identity the conclusion that the apparition is the surviving person. The correct conclusion to draw is that the sighting of an apparition satisfying the criteria serves as evidence that a particular person has survived: the surviving person might simply have produced the apparition (as an entity in the physical world or as a subjective experience of the sighter) and made it such that it satisfied criteria of personal identity.[37] Our evaluation of the evidence will depend on all the facts about sightings of apparitions and on the possible explanations of such sightings.

Let us now consider how apparitions do sometimes satisfy the criteria of identity. A notable fact about apparitions is that they rarely speak. When they do speak, they do not, usually, report a sufficient number of their memories for an identification to be made on the basis of memories alone. Also, apparitions rarely remain in a percipient's visual field for very long, and this fact makes it difficult to identify them by the dispositions they display. Now apparitions often do display purposeful activity, and this fact does constitute evidence that a particular person has survived with at least some of his important mental traits still intact. To appreciate the evidential weight of the satisfaction of this latter criterion of personal identity, let us briefly examine a recent study of deathbed observations of physicians and nurses.

Dr. Karlis Osis, a researcher for the American Society for Psychical Research, conducted a survey of deathbed observations and published the results in 1961.[38] He contacted physicians and nurses

and asked them to report their observations of deathbed patients who reported hallucinations of persons. Hoping to find evidence for survival, he then carried out an elaborate statistical analysis of the results. One of his discoveries was that apparitions of the dead who are seen by dying patients often make it clear to the patient that they have come to help the patient in a transition to "another world." Such apparitions clearly engage in purposeful activity, and this fact constitutes some evidence for the survival hypothesis.

The final type of survival phenomena we will consider as evidence for survival is mediumistic phenomena. Mediums in trance often speak and behave as though deceased individuals are communicating through them with the living. To the question "Do mediumistic phenomena constitute evidence of personal survival?" we must answer, "Yes, positively." The mediumistic phenomena satisfy all the mental criteria for personal identity. Quite often in lengthy communications the entity supposedly speaking through the medium will report several highly specific memories which are sufficient to identify him as a formerly living person. Furthermore, during the course of a lengthy séance or over a period of several séances the entity communicating through a medium can display a sufficient number of his dispositions to enable an observer to identify him. It is not uncommon, in fact, for a disembodied individual who has, allegedly, taken "possession" of a medium's body to use the body to exhibit all the distinctive habits of speech and thought and mood, in short, to display the personality, which characterized the deceased when he was alive. Finally, many entities allegedly communicating through mediums exhibit purpose, and many of them exhibit a capacity for intelli-

gent activity such as that involved in the production of the cross-correspondences, cited in Chapter One. It would seem, therefore, that mediumistic phenomena are evidence that souls survive and also that they retain a good deal of their intellectual ability.

V. Counterexplanations for Survival Phenomena

We have discussed a few examples of survival phenomena and examined the various types of survival phenomena as evidence for the survival thesis. In order to complete our evaluation of the survival hypothesis as a possible explanation of survival phenomena, we must compare it with other hypotheses that have been offered to explain these phenomena. We must also take note of certain instances of survival phenomena which constitute counterexamples to the survival hypothesis in the sense that for these instances the survival hypothesis is not plausible. In this section we will examine these counterhypotheses and counterexamples.

A. Counterhypotheses for the Survival Phenomena

We will first discuss counterhypotheses for each type of survival phenomena. An important characteristic of all these counterhypotheses is that they can be used to explain survival phenomena solely by reference to known psychological processes and the hypothesized psychic faculties of living individuals. The counterhypotheses do not assume that discarnate individuals play any role in survival phenomena. For this reason they compete with the survival hypothesis as explanations of survival phenomena. To the extent that the counterhypotheses are reasonable and well supported by general theoretical considerations,

they serve to diminish the plausibility of the survival hypothesis.

In recent years parapsychologists have studied poltergeists extensively. Since it has been known for a long time that poltergeists are generally each closely associated with a single person, usually a child near the age of puberty, parapsychologists have studied the persons associated with poltergeists. W. G. Roll, an American parapsychologist, has been a leader in this work. D. Scott Rogo, another American parapsychologist, observes that

> in those agents that Roll has examined, a consistent pattern has emerged. Poltergeist agents usually have a low ability at verbal expression. This is coupled with built-up hostility that is being repressed from consciousness. These agents seem to be persons who have a deep feeling of hostility and frustration, and a crippling inability to express this hostility.[39]

Roll's discovery is the basis for his hypothesis that the living person who is found to be the apparent agent of the poltergeist outbreak produces the phenomena by unconsciously directing a powerful psychokinetic force which he has generated.[40] The force seems to be generated by the agent's disturbed psychological state, which produces tension that needs to be released. The agents are never aware that they are the source of the PK force, and this fact explains why they cannot predict or control the poltergeist phenomena.

Roll's hypothesis explains poltergeists in terms of fairly well understood psychological processes and the assumption that living human beings can produce psychokinetic phenomena. This latter assumption has been well verified. So Roll's hypothesis is attractive, and it seems to afford as reasonable an explanation of poltergeist outbreaks as does the survival hypothesis.

Roll's hypothesis does face a couple of problems, neither of

which constitutes an insurmountable difficulty. First, there have been some poltergeists associated with apparitions. Rogo mentions a case in which an apparition was once seen standing by a table which had often moved inexplicably, and he suggests that possibly the apparition, rather than a living person, was responsible for the movement of the table.[41] If it were the case that apparitions are the product of deceased individuals, then this example would seem to support the survival hypothesis as opposed to Roll's hypothesis for explaining poltergeists. However, as Rogo has argued,[42] the apparition might be simply a projection of the apparent living poltergeist agent, so that the apparition, if it is responsible for the movement, is the means by which the living agent channels (again, unconsciously) his psychokinetic force. Alternatively, Roll could simply argue that the apparition is a secondary effect of the poltergeist agent and not responsible for the table's movement, which is caused directly by the living agent. In either case, Roll's hypothesis that the force responsible for the movement originates with a particular living agent remains adequate if it is additionally stipulated that the living agent might sometimes produce an apparition to accompany his psychokinetic display.

A second difficulty facing Roll's hypothesis is that sometimes the flight of an object during a poltergeist outbreak is over a trajectory with sharp turns around objects and corners. This suggests that an intelligent discarnate entity is directing the flight. Roll's hypothesis is not much damaged by this fact about trajectories, because it can be reasonably supposed that the subconscious mind of the living agent uses ESP to plot the path of the object it is moving by PK so

that the object makes sharp turns to avoid hitting things. Roll's hypothesis, therefore, still compares favorably with the survival hypothesis as an explanation of poltergeists.

Let us now proceed to counterexplanations for OOBE's. An obvious counterhypothesis for OOBE's in general is that they are unusual dreams. This hypothesis seems reasonable, because whenever a person has an OOBE he is almost never conscious, and usually he is just asleep. The only difficulty the hypothesis seems to face is that sometimes people who have OOBE's acquire correct information about distant places to which they believe they have traveled during the OOBE's. To circumvent this difficulty, an anti-survivalist who favors the dream hypothesis need only supplement it with the additional hypothesis that persons who have OOBE's and who acquire such information do so paranormally while their minds are still really located in their bodies. The result of this supplementation is the dream-plus-ESP hypothesis. Now it seems that the dream-plus-ESP hypothesis is just as reasonable as the traveling-soul hypothesis (which, as we have noted, gives some support to the survival hypothesis) in explaining OOBE's. There are, however, some facts that tend to tilt the balance in favor of the traveling-soul hypothesis.

First, there are reported instances in which a person who had an OOBE thought at the time of the OOBE that he was at a particular place, and another person at the time of the OOBE saw an apparition of the experiencer of the OOBE. An example is the Landau case, in which a woman had an OOBE while asleep and her husband saw an apparition of her in another room apparently at the same time that the woman had her OOBE.[43] This occasional interrelation of OOBE's and apparitions seems

to support the traveling-soul hypothesis, for it is quite reasonable to suppose that the traveling soul of a person having the OOBE was "housed" in the apparition seen by the other party. (Of course, it is also possible that the mind of the experiencer of the OOBE stayed in the experiencer's body and that the experiencer telepathically induced the percipient to hallucinate an apparition of the experiencer.)

A second fact supporting the traveling-soul hypothesis pertains to Ingo Swann, reputed to be one of America's most talented living psychics. Swann has the unusual ability to undergo OOBE's while in what is only a very slightly modified normal state of consciousness. He is, therefore, an excellent subject for the study of OOBE's, because he can exercise some degree of critical judgment during the experiences. The ingenious parapsychologists at the American Society for Psychical Research, led by Dr. Karlis Osis, devised an experiment which could help decide between the traveling-soul interpretation of OOBE's and the dream-plus-ESP interpretation. The general procedure of the experiment is to place over the target object certain optical devices which will cause a picture to appear one way if viewed from one spatial position and cause it to appear another way if viewed from a different spatial position. The psychic then attempts an OOBE. He gives his report. If he describes the target as he might had he used a sort of clairvoyant x-ray from the position of his body, this would support the dream-plus-ESP hypothesis. If he describes the target as he would if he were to view it from a height and through the optical device, this would support the traveling-soul hypothesis. Preliminary studies with Swann support the latter hypothesis.[44]

Even though the experimental and anecdotal facts support the traveling-soul hypothesis rather than the dream-plus-ESP hypothesis as the best explanation of OOBE's, the survival hypothesis thereby gains little additional support from OOBE's. This is because, as pointed out earlier, OOBE's do not themselves directly support the survival hypothesis.

We turn now to apparitions. The obvious counterhypothesis here is that apparitions are hallucinations. This hypothesis, supplemented when necessary by the assumption that the living have psychic ability, can be applied in explaining every possible sort of apparitional sighting. If the sighting of an apparition supplies the percipient with hitherto unknown information, we can explain the information acquisition as the result of unconscious ESP by the percipient. If an apparition is seen by more than one person, we can explain it by saying that several people suffered an hallucination; and if they all report having seen the same thing, we can say that the mind of one of them "influenced," perhaps by a kind of PK, the minds of the others so that they all saw what the one imagined first. If an apparition casts a shadow, we can say that the percipient hallucinated the shadow as well as the apparition. If an apparition moves an object, we can say that the percipient moved it by PK while hallucinating the apparition. And we could go on with ad hoc explanations.

It seems clear to me that sometimes the hallucination explanation is a bit forced. This is especially true for apparitions seen by several people. Because of this, I am inclined to think that in at least some cases apparitions are some sort of occurrence in space external to

the percipient. However, even if this supposition is correct, anti-survivalists can explain any such occurrence as a product of a living person rather than of a deceased individual, and therefore they need not concede any ground to the survivalists.

We turn now to mediumistic phenomena. As will be recalled, in Chapter One I suggested that for convenience's sake we divide the mediumistic phenomena into three groups: the simple phenomena, in which the medium supplies information known by the sitter; complex phenomena, in which the medium supplies information very little of which, if any, is known by the sitter; and cross-correspondences, in which several mediums produce independently bits of apparently unrelated data that cohere to form an intelligible pattern only after a key phrase is finally supplied through one of the mediums. The counterhypotheses to explain these phenomena are similar in that they all assume that the medium uses her psychic ability to get the information; they differ only in how powerful a psychic faculty must be postulated for a medium in order to explain a particular type of phenomena. Insofar as a medium imitates a deceased person's voice tone, his speaking peculiarities, his usual gestures (in cases of "possession"), and so forth, the counterhypotheses presume that the medium's behavior can be explained in terms of her histrionic ability. This presumption seems warranted by the well-known fact that persons in hypnotic trances similar to a medium's trance display remarkable histrionic skill.

Simple phenomena are explained rather easily by supposing that the medium acquires information about the personal memories, manner of speech, and so forth of the deceased by using telepathy to "contact"

the mind of the sitter and fish out the information. There is a great deal of independent evidence for this sort of telepathy,[45] so the counterhypothesis seems very plausible.

For complex phenomena it must be supposed that the medium obtains some of the information she presents by contacting sources of information outside the séance room. Usually there are living persons who are available to testify to the accuracy of the medium's utterances, and these persons presumably are the sources of the medium's telepathic acquisition of information, even if they were quite a distance from the séance room during the séance. In rare cases, no living person can vouch for the accuracy of the information which the discarnate entity purportedly provides through the medium, and in these cases it must be supposed that the medium obtains the information clairvoyantly from written documents known to the deceased. Perhaps an example here will help us judge the plausibility of the counterhypothesis when very good clairvoyance is required for a counterexplanation.

Gardner Murphy, a noted psychologist, has quoted as follows from an article by Mrs. Henry Sidgwick in which she quotes from a report by a Mrs. Hugh Talbot who was the sitter at a séance with the medium Mrs. Leonard when the deceased Mr. Talbot allegedly communicated:

> "Suddenly Feda (Mrs. Leonard's control) began a tiresome description, of a book, she said it was leather and dark, and tried to show me the size. Mrs. Leonard showed a length of eight to ten inches long with her hands, and four or five inches wide. She (Feda) said 'It is not exactly a book, it is not printed . . . it has writing in.' . . . 'there are two books, you will know the one he means by a diagram of languages in the front.' . . . 'Indo-European, Aryan, Semitic languages.' . . . 'A table of Arabian languages, Semitic languages.' It sounded absolute rubbish to me. I had never heard of a diagram of languages and all these Eastern names jumbled together sounded like nothing at all, and she kept on repeating them and saying this is how I was to know the book, and kept on

> and on 'Will you look at page twelve or thirteen. If it is there, it would interest him so much after this conversation. [In the earlier part of the sitting the communicator had repeatedly asked the sitter to believe that life continued after death and that he did not feel changed at all.] . . ." Mrs. Talbot reported that the next day she found two old notebooks which had belonged to her husband and which she had never cared to open. A shabby black leather one corresponded in size to Feda's description. "To my utter astonishment, my eyes fell on the words, 'Table of Semitc or Syro-Arabian Languages,' and pulling out the leaf, which was a long folded piece of paper pasted in, I saw on the other side 'General table of the Aryan and Indo-European languages.'" On page thirteen of this notebook was an extract from an anonymous work entitled Post Mortem. It describes the sensations of a person who realizes that he is dead, and of his meeting with his deceased relatives.[46]

To explain this case by means of the anti-survivalists' counterhypothesis, we would have to say that the medium was able to scan clairvoyantly the library of the deceased scholar and find the one place in the notebook to which it would be appropriate to refer when the deceased allegedly communicated through the medium and tried to describe his disembodied experiences. The sort of psi ability required for such a feat, even though it seems remarkable, is not different in quality from the clairvoyant faculties of talented individuals revealed in experimental settings,[47] so the counterhypothesis is quite reasonable, despite first appearances.

Let us turn now to the cross-correspondences. The most plausible counterhypothesis here is that one of the mediums involved in the cross-correspondence under consideration is the source of the puzzle pieces that appear in the scripts. Presumably her subconscious mind invents the whole scheme and then transmits (telepathically) the bits of the cross-correspondence to the other mediums and causes those bits to emerge in the scripts of the other mediums. As a talented medium she would have no difficulty in knowing where the other mediums are

located and when they are producing their scripts, and so she should be able to carry out her plan. The remarkable psychic powers required of the key medium do not seem beyond the range of talented psychics. Edgar Cayce, the famous American psychic, was able to locate missing persons if he was given only their names and a minimum of information about them, and on at least one occasion he was able to impose his thoughts so strongly upon the mind of a man who disliked him that he compelled him, by a psychic influence, to come to his photographic studio. When the man appeared at Cayce's studio and was unable to explain why he had come, he said that he "just felt like coming."[48] Our conclusion, then, is that creation of cross-correspondences is not beyond the ability of some psychics.

B. Counterexamples Pertaining to Survival Phenomena

No counterexamples are needed for OOBE's, as they do not directly support the survival hypothesis. Counterexamples for other types of survival phenomena are available, however, and we will now discuss a few of these.

An ideal counterexample to the survivalists' interpretation of poltergeists would be a poltergeist outbreak in which it was positively known that the phenomena were not caused by a deceased individual. To my knowledge, no such counterexample exists. Nevertheless, certain mediumistic phenomena do show that occurrences very similar to those of a poltergeist outbreak can be produced by living agents who attempt to produce them. These mediumistic phenomena are the so-called "physical phenomena" of séances. These phenomena are produced by only

a small minority of mediums, those called "physical mediums," very few of whom are active today. One of the most famous of all physical mediums, D. D. Home, to whom we referred in Chapter One when giving examples of PK phenomena, was able during seances to produce rapping sounds in walls and tables, to make objects float around in the séance room, and to produce a variety of other phenomena quite similar to the phenomena that occur during a typical poltergeist outbreak. Home consciously willed the production of these phenomena (without knowing by what specific means they were produced), and this shows beyond reasonble doubt that living agents can produce phenomena quite similar to those of typical poltergeist outbreaks.[49]

The proven ability of physical mediums and the recent discoveries about the psychological profiles of most poltergeist agents together constitute very strong evidence that poltergeist agents are the sources of the forces that produce poltergeist phenomena. I conclude, therefore, that poltergeists provide very little support for the survival thesis.

A counterexample to the survivalists' interpretation of apparitions would be an apparition of a deceased person produced by a living agent. The occurrence of such an apparition would show that for at least one apparition no deceased individual is the agent who produced it. And this in turn would diminish the support for the survival hypothesis seemingly provided by the occurrence of apparitions.

Such a counterexample was produced by H. M. Wesermann, a government assessor and chief inspector of roads at Düsseldorf, and was reported by Wesermann in the early nineteenth century. In an experiment

Wesermann tried to project an image of a deceased lady to a friend of his whom he expected to be asleep. The friend, however, was awake and talking to a colleague. These two men saw the apparition of the woman, which greeted them with a wave of the hand.[50]

Although Wesermann's counterexample does not disprove the survivalists' interpretation of those apparitions of the dead which, unlike the counterexample, are not known to have been produced by living agents, it does cast a shadow of doubt on this interpretation. Certainly there are some reports of sightings of apparitions of the dead, such as those in which the apparition brings a message to the percipient, which seem strongly to favor the survival hypothesis as an explanation. But the weight of these reports as evidence for the survival hypothesis is diminished by counterexamples such as Wesermann's.

There are interesting counterexamples for some of the types of mediumistic phenomena. As a counterexample to the simple type of mediumistic phenomena, in which the sitter knew the alleged communicator very well, there is the "Bessie Beals" case. Dr. Stanley Hall and Amy Tanner had a series of sittings with the medium Mrs. Piper in 1909. Dr. Hall asked Hodgson, the medium's "control" (the "spirit" who usually attends a medium in trance by communicating directly with her mind and helps other "spirits" speak through her), to see if his (Hall's) niece, Bessie Beals, would communicate. The niece did communicate during several sittings, and she reported some specific memories connected with Dr. Hall. Then Dr. Hall revealed the truth to Hodgson--Bessie Beals was a fabrication; no such person had ever existed. The control's reaction, not surprisingly, was to attempt to brush the whole matter off

as a case of mistaken identity.[51]

Dr. S. G. Soal, a British mathematician and parapsychologist, came across a fascinating counterexample to the complex type of survival phenomena. Dr. Soal had some séances with a medium named Blanche Cooper in the early 1920's. At one of the séances Mrs. Cooper's control introduced a communicator who claimed to be Gordon Davis. Soal had known Davis slightly as a schoolmate. He had last seen Davis at a railway station as the two men prepared to go off to World War I. Soal later heard that Davis had been killed in the war. In the séance the communicator reminisced with Soal about certain instructors and friends whom he and Soal had had in school. He recalled, for example, a particular argument Davis had had with a teacher. He also reproduced Davis's tone of voice and displayed many of his turns of speech. In a second séance five days later the communicator returned. This time he gave detailed information about the house where Davis's wife and child lived. Soal had no idea that Davis had married and had had a child. Of course, Soal did go to visit Davis's family, as the communicator requested.

What is remarkable is that when Soal found Davis's wife and child, he found Davis, too. Gordon Davis was alive and well in southern England.[52]

The Gordon Davis case is a perfect counterexample to the survivalists' interpretation of complex mediumistic phenomena. During the séances in which the alleged communicator spoke through the medium, all appearances were that a deceased individual was speaking to the living. The display was very good and convincing. But Gordon Davis was alive, so it could not have been Davis who was communicating. And so the

Gordon Davis case is an example of mediumistic phenomena which the survival hypothesis cannot possibly explain in terms of the deceased individual purporting to communicate. It is, therefore, a counterexample to the survival hypothesis.

The counterexamples to simple and complex mediumistic phenomena tend to depreciate greatly the value of the survival hypothesis as a proper explanation for such phenomena, and they correspondingly increase the likelihood that a counterhypothesis in terms of ESP and histrionic ability is the correct explanation.

The final type of survival phenomena we need to consider is the cross-correspondence type. Here we have no counterexample to offer. We can, however, examine some of the reasoning and final judgments on these phenomena made by persons who have studied them carefully. This examination will help us decide how good is the evidence for the survival thesis provided by cross-correspondences.

E. R. Dodds, in the article "Why I do not Believe in Survival,"[53] argues that the patterns found in the cross-correspondences are not evidence of design. Dodds concedes that the patterns are clearly not due to chance, but rather than admit that they are due to design, he suggests that they can be explained by "undesigned telepathic infiltration . . . between the subconscious minds of certain automatists."[54] If we posit such infiltration, then we need only further explain, says Dodds, why certain ideas appear in different scripts in complementary forms and why, when a certain common idea appears in a script, it is accompanied by a note in the script saying in effect that the idea should be sought elsewhere (in other automatists' scripts) as well. Dodds

does not propose a way to explain these peculiar appearances of ideas; he simply expresses his conviction that appearances of ideas in different automatists' scripts are not evidence of design.

Most commentators on the cross-correspondences take it for granted, unlike Dodds, that there is obvious design manifested in the scripts. Their concern is then with the question of what could be the source of the design. The two possibilities are the subconscious mind of one of the automatists and the discarnate entity who purportedly claims responsibility for the correspondences. Gardner Murphy, while conceding that the cross-correspondences "remain profoundly impressive as survival evidence," analyzes the cross-correspondence called the "Ear of Dionysius" case, in which the deceased classical scholars A. W. Verrall and Henry Butcher allegedly produced a complicated puzzle based on allusions to Greek poetry, as follows:

> The point we are making is . . . to the effect that while many things in the messages are characteristic of Verrall and Butcher, it is not in the least characteristic of intelligent communicators, carrying out a plan, to make a preliminary approach, and then to drop the whole thing and turn to other matters until new conditions are likely to endanger the whole test. And it does not get us far to say that time for the deceased may be different from what it is for us, for they have ostensibly adapted themselves, in order to give evidence, to our time and to our conditions. The more honest thing would be to say that the episode shows some of that dreaminess, vagueness--lack of tight, orderly, disciplined thinking--which characterizes automatism or dissociated processes generally. Thus not only do the contents of the communications frequently suggest a source in the minds of the living, but the very character traits of the communicators are sometimes unlike those which we should expect.[55]

As Murphy's remarks make clear, although the "Ear of Dionysius" cross-correspondence gives evidence of design, other aspects of the case, in particular the one-year lapse in giving the remainder of the puzzle parts, suggests that the cross-correspondence was not produced

by a disciplined mind. These other aspects in fact suggest that the cross-correspondence was the product of the subconscious mind of a living person, presumably one of the automatists.

Other commentators argue that the subconscious mind of no medium participating in the cross-correspondence could have produced the subtle and complicated puzzles manifested in the scripts, because the subconscious mind does not have the capacity for such ingenious puzzle creation. Renee Haynes, a psychical researcher, reasons as follows:

> But though the psi-function, working as it does through the unconscious, might perhaps choose material, and so brood on it that it reaches other minds, it does not usually undertake activities which need careful, detailed planning; and the 'selective' transmission of material, this bit to one person, that to another, is very difficult to reconcile with the way in which psi is usually observed to occur. In spontaneous telepathy between two living persons both are interested in one another, and an impression, a vision, an emotion comes through. But to attract the attention of one medium to one group of data and of another to another, and to see that the results fitted in in a finished product does not look like the work of the unconscious, but of deliberate and careful thought whether on the part of Myers or of some other entity.[56]

The preceding arguments and judgments by several writers suggest to me that cross-correspondences constitute good, but not excellent, evidence for the survival hypothesis. We simply do not know how powerful might be the subconscious mind of a medium. Perhaps such a mind would be able to produce cross-correspondences if it had access to appropriate telepathic channels. Perhaps not. Because we lack adequate information in this area, our evaluation of the cross-correspondences must be somewhat subjective. Insofar as one believes that a subconscious mind <u>cannot</u> engage in the supposedly "careful, detailed planning" needed for producing cross-correspondences, one should regard

cross-correspondences as fairly good evidence for the survival hypothesis.

VI. Final Evaluation of Survival Phenomena

Our discussion of differing interpretations of cross-correspondences reveals, I believe, that the evaluation of cross-correspondences is a subjective matter. I believe that for survival phenomena generally evaluation is largely subjective, a matter of personal impression of the total evidential picture with respect to the competing explanatory hypotheses. The evaluation must be largely subjective because the data upon which any evaluation is based are so rare and so poorly understood. The only scientifically proper objective evaluation of the data must result in suspension of belief about the correct explanation of the survival evidence. A definite opinion about the correct explanation of the phenomena must be based, it seems to me, on one's subjective impression of the data. Not even the criterion of simplicity (the appeal to Occam's Razor, which can be formulated roughly as "We should not postulate more theoretical entities than necessary to explain the phenomena") is of use in evaluating the hypotheses offered to explain survival phenomena. If an anti-survivalist appealed to this criterion by arguing that souls are superfluous theoretical entities for explaining survival phenomena, a survivalist could, I believe, justifiably argue in reply that the hypothesis of very remarkable ESP needed to explain certain complex mediumistic phenomena and the cross-correspondences itself constitutes a more complex explanation of the phenomena than does the survival hypothesis. Although the survival hypothesis violates the principle of Occam's Razor, it satisfies the complementary

scientific principle that theoretical explanations should be as simple as possible. And the survival hypothesis provides a simpler explanation of certain survival phenomena than does the ESP hypothesis. For example, to explain a cross-correspondence by the ESP hypothesis, it must be assumed that the subconscious mind of one of the mediums created the plan for the cross-correspondence and then used ESP to locate the other mediums (who often lived in other countries and sometimes were not even acquainted with each other or the key and originating medium) and impress the puzzle pieces upon their minds at the very moment they were writing. This is certainly a complex task, and it is one that seems beyond the power of subconscious minds as we presently understand them. In comparison the survival hypothesis makes the explanation fairly simple: a certain deceased individual, such as Frederic Myers, created the plan consciously, picked the mediums through whom he wanted to communicate, and then impressed the puzzle pieces upon their minds as they wrote. For other mediumistic phenomena, the survival hypothesis provides an explanation that is far more simple than the ESP hypothesis, for according to the survival hypothesis it is supposed that the deceased supplies all the information directly to the medium, somewhat in the manner of one person relating facts (perhaps telepathically) to another. According to the ESP hypothesis, on the other hand, the medium's subconscious mind carries out a fantastic search through many old notebooks and library books in order to gather facts by means of which an appearance can be given that a certain deceased individual is communicating through the medium. (Compare the Talbot case cited above.)

In the previous section I indicated how the competing hypotheses

compare for each type of survival phenomena. In summary, my impression of the total evidential picture (insofar as I am acquainted with it) is as follows. Poltergeists very likely are psychokinetic phenomena produced by living persons; so they offer very little support to the survival thesis. OOBE's very well might be experiences had outside physical human bodies. Since the argument from this possibility to the possibility of personal survival has some slight merit, OOBE's do provide weak evidence for the survival thesis. Apparitions, despite certain counterexamples, might be produced by deceased individuals; therefore, the occurrence of apparitions constitutes what I consider fair evidence for the survival thesis. Mediumistic phenomena, similarly, seem to constitute fair evidence for the survival thesis. If we take all the survival phenomena together, they seem to constitute "fair-to-good" evidence for the survival thesis.

As I stated at the beginning of this chapter, my conclusion is that survival phenomena provide a sufficient evidential basis to justify the rational belief that persons might have souls that survive their physical deaths. Our discussion of two scientific theories of the soul shows that there is a possibility that someday a testable, perhaps even quantifiable, scientific theory of the soul will be developed. This possibility supports my thesis that adherents of the scientific world-view and of certain religious world-views might eventually come to agree about the "physical" nature of souls and their survival of physical death. It should be emphasized once again, however, that if a scientific concept of the soul is postulated, the souls that scientists speak of will not be immortal, but at best entities that persist

for a long time after the deaths of the bodies with which they were once associated. In order for the scientific world-view and certain religious world-views to be reconciled on the question of the soul's existence and survival, the adherents of the religious world-views would have to accept something less than immortality for souls.

In the following chapter I will examine in depth the concept of precognition, and I will indicate its bearing upon traditional philosophical arguments about free will and fatalism. I will show how the parapsychological study of precognition affects these arguments and how it affects the contemporary scientific world-view.

ENDNOTES TO CHAPTER III

1. In order to simplify the discussion of the numerous and complex arguments about the survival thesis and to keep this chapter within manageable limits, I must arbitrarily restrict some of the debate on the survival thesis. It is conceivable that someone would argue against the survival thesis by saying that it would be morally reprehensible or unjust if all persons, including the most severely retarded and the insane, survived. Ethical arguments of this sort are beyond the scope of this chapter. I have chosen to discuss only a few current philosophical arguments and to center the chapter on the evaluation of the parapsychological evidence for survival. It should be obvious, therefore, that no attempt is made here to canvass all aspects of the survival question. And from this it follows that the conclusion of the chapter--that survival phenomena give some support to belief in the survival thesis--follows only from an examination of the parapsychological evidence rather than from a comprehensive study of all aspects of the survival question.

2. Although it is possible to distinguish the mind and the soul, e.g., by saying that a person's mind is the set of mental properties he has as a result of his experience in a physical body and that his soul is his spiritual nature which exists independently of the physical world, I do not believe that attempting to make such a distinction will aid the restricted discussion of this chapter. I shall use the words "mind" and "soul" as though they are synonymous.

3. I am assuming in this discussion of the intelligibility of the survival thesis that souls are nonphysical, for this is the assumption of philosophers who say that the survival thesis is unintelligible. I intend to show in this section that the survival thesis is intelligible even if souls are nonphysical. Since I have argued that a "physical" concept of the soul is conceivable, and that such a concept is what is needed if there is to be a reconciliation of scientists and religious believers on the question of the soul's existence and survival, it is obvious that the entire discussion in

this section would be pointless should such a reconciliation take place. The discussion is not pointless, however, because it shows that the survival thesis is intelligible, and therefore can be rationally adhered to, even if a physicalistic conception of the soul is never created by scientists in order to explain survival phenomena. The discussion, therefore, can be viewed as an exercise in philosophy and as an attempt to dispose scientists and philosophers not to dismiss the survival thesis out of hand because some versions of it at first appear unintelligible. Futhermore, the discussion is not pointless at the present stage in research on the survival question, because the only criteria presently available for judging affirmatively that souls survive are mental criteria of identity.

4. Language, Truth, and Logic (New York: Dover Publications, Inc., 1952), p. 117.

5. The Problem of Knowledge (Bungay, Suffolk, England: Penguin Books, Ltd., 1956), p. 193.

6. Ibid., 195.

7. "Is There a Case for Disembodied Survival?" reprinted from the Journal of the American Society for Psychical Research, 1972 in Philosophical Dimensions of Parapsychology, ed. Hoyt L. Edge and James M. O. Wheatley (Springfield, Illinois: Charles C. Thomas, 1976), p. 342.

8. Flew's arguments are on pp. 342-345 of "Is There a Case for Disembodied Survival?"

9. Ibid., pp. 344-345.

10. See his article "Personal Identity" in the Encyclopedia of Philosophy, ed. Paul Edwards (New York: Macmillan Publishing Co., 1967), VI, 98.

11. A Treatise of Human Nature (Oxford: Clarendon Press, 1888), pp. 635-636.

12. We should remember, however, that most philosophers of the seventeenth and eighteenth centuries believed that the concept of substance is needed to account for the through-time identity of objects.

13. Flew, op. cit., p. 343.

14. Flew, op. cit., p. 344.

15. The Problem of Knowledge, p. 197.

16. I assume that the skeptic is not so irrational as to challenge the rules of logic.

17. It obviously does not follow from this, however, that we usually accept memory cliams over the evidence of bodily-identity tests whenever memory and bodily-identity tests yield contradictory results. In such cases we generally rely on the bodily-identity tests. My point, however, is simply that neither type of test provides proof of identity.

18. Penelhum, op. cit., p. 101.

19. Penelhum himself goes on to argue that memory cannot be the sole sufficient criterion of personal identity, but his argument seems to depend on his reverting to his initial insistance (in his encyclopedia article on personal identity) that the concept of criterion be taken in the strong sense.

20. Broad presented a rough, tentative version of a multiple-dimension theory to explain precognition in "The Philosophical Implications of Foreknowledge," Proceedings of the Aristotelian Society, Supplementary Volume 16 (1937), 177-209. Smythies developed the idea of multiple dimensions to explain not only psi phenomena (this aspect of his theory will be discussed in Chapter Five) but also to provide a basis for a scientific concept of the soul.

21. "Is ESP Possible?" in Science and ESP, ed. J. R. Smythies (London: Routledge & Kegan Paul, 1967), p. 6. Smythies' italics. I do not think that we have to accept Smythies' analysis of the components of the mind in order to appreciate his theory.

22. Ibid., p. 7. Smythies' italics.

23. Ibid., pp. 9-10.

24. Ibid., pp. 10-11.

25. Their theory is presented in "Regulating Our Mind-Body Processes," an unpublished article based on an address delivered at the Sixth Annual Medical Meeting of the A. R. E. Clinic, Ltd., Phoenix, Arizona, January, 1972.

26. In Chapter Two I suggested that two ways scientists can conceive the soul are to conceive it as an entity in higher-dimensional space or to conceive it as a qualitatively new type of entity in ordinary physical space. The Greens seem to theorize that souls are a type of field phenomenon rather than a qualitatively new type of entity. I suggest, however, that it might turn out that souls, if scientists do finally postulate their existence, are qualitatively new types of entities, different from both particles and fields. The Greens believe that minds or souls might exist on a continuum with bodies. But their theory might be modifiable

so that minds are qualitatively different from both particles and fields. Minds would be on a "continuum" with bodies only in the sense that they are not ontologically dissimilar from bodies. Compare this with particles and fields; they are both "physical" but they are qualitatively different.

27. Elmer and Alyce Green, op. cit.

28. Ibid.

29. Ibid.

30. Ibid.

31. Ibid. Greens' italics.

32. Lectures on Psychical Research (New York: The Humanities Press, 1962), p. 420.

33. Quoted by R. C. Johnson, Psychical Research (New York: Funk and Wagnalls, 1968), pp. 82-83.

34. "Out-of-the-Body Experiences," Psychic Exploration, ed. John White (New York: G. P. Putnam's Sons, 1976), p. 353. Tart's italics.

35. Dr. Raymond A. Moody's recently published book, Life After Life (New York: Bantam Books, 1976), is a discussion of "near-death" experiences in which people appear to die, and are sometimes even pronounced clinically dead, but are revived. When they are revived, these people often report out-of-the-body experiences during their short-lasting "deaths." Dr. Moody has studied well over a hundred reports of such experiences, and he has found that the experiences generally conform to a basic pattern. The similarity in the experiences can properly be viewed, I believe, as constituting another bit of support for the survival hypothesis, but not enough support to alter significantly the conclusion I draw at the end of this chapter.

36. The conception of the soul as an astral body is difficult to make satisfactorily clear, as is true for any conception of the soul. I do not believe that it would be profitable in this dissertation to attempt to defend any particular detailed interpretation of what an astral body is or of how it is made visible. For my purposes it is sufficient that we conceive astral bodies as long-lasting entities which exist in the four-dimensional physical world and which are the souls of persons. That the soul of a person has a bodily shape is not a popular contemporary philosophical view, but it is an intelligible view and a view that some thinkers have accepted. See, for example, the selection by Tertullian in Antony Flew's Body, Mind, and Death (New York: Macmillan Publishing Co., 1964), pp. 91-93.

37. We should keep in mind here that an apparition "satisfies" a bodily criterion of personal identity only in the sense that it seems to be the formerly living person. Since the formerly living person is dead, it cannot follow deductively from an apparition's "satisfaction" of a bodily criterion of personal identity that the apparition is the formerly living person. So the apparition's apparent satisfaction of the criteria of personal identity only serves as some evidence that the surviving soul of the formerly living person produced the apparition. And it serves as such evidence only because it is reasonable to presume that the surviving soul represented by the apparition would be the most likely agent wanting to produce an apparition of the formerly living person.

38. "Deathbed Observations by Physicians and Nurses," Parapsychological Monographs, No. 3 (New York: Parapsychology Foundation, Inc., 1961).

39. "Apparitions, Hauntings, and Poltergeists," Psychic Exploration, ed. John White (New York: G. P. Putnam's Sons, 1976), p. 391.

40. The Poltergeist (New York: Doubleday, 1972).

41. Rogo, op. cit., p. 392.

42. Ibid., p. 393.

43. Charles Tart reports this case in detail in "Out-of-the-Body Experiences," in Psychic Exploration, ed. John White (New York: G. P. Putnam's Sons, 1976), pp. 349-351.

44. Tart, op. cit., p. 366.

45. Perhaps the best such evidence consists of the displays of psychics like Edgar Cayce, who needed only the name and location of a person in order to "contact" him telepathically and then report on his current physical condition and mental state.

46. "An Outline of Survival Evidence," Journal of American Society for Psychical Research, XXXIX (January, 1945), 14-15. Mrs. Sidgwick's article originally appeared in Proceedings of the Society for Psychical Research, XXXI (1920-1921), 253-260. Italics in the original.

47. Experiments using the "down through" method, in which the ESP cards remain packed together just as closely as the pages of a book, have been very successful. See, for example, J. B. Rhine, The Reach of the Mind (New York: William Sloane Associates, Inc., 1947), pp. 40-42.

48. Many illustrations of Cayce's abilities can be found in popular works on this psychic, one such work being Joseph Millard's Edgar Cayce: Mystery Man of Miracles (Greenwich, Connecticutt: Fawcett Publications, Inc., 1967).

49. An interesting account of one of Home's seances which was attended and reported upon by some highly competent observers is given by G. Zorab in "Test Sittings with D. D. Home at Amsterdam," The Journal of Parapsychology, XXXIV (March, 1970), 47-63.

50. William G. Roll recounts this case in "Survival Research: Problems and Possibilities," in White, op. cit., pp. 402-403.

51. Gardner Murphy, "Difficulties Confronting the Survival Hypothesis," Journal of the American Society for Psychical Research, XXXIX (April, 1945), 75-76.

52. William G. Roll, op. cit., pp. 400-402.

53. Originally published in Proceedings of Society for Psychical Research, XLII (1932), reprinted in part in Philosophers in Wonderland, ed. Peter A. French (St. Paul, Minnesota: Llewellyn Publications, 1975), pp. 309-317.

54. Ibid., p. 315.

55. Murphy, op. cit., pp. 89-90. Murphy's italics.

56. The Hidden Springs (New York: The Devin-Adair Company, 1961), p. 233.

CHAPTER IV

PRECOGNITION, FATALISM, AND FREE WILL

Precognition is one of the most philosophically interesting types of psi phenomena because it is conceptually closely associated with the traditional philosophical problems of fatalism and free will and with the philosophical perplexities relating to determinism. If we take the possibility of precognition seriously, as we would if we believed that some psychics can occasionally in some sense "see" determinate future events, then we would wonder, if we are philosophically inclined at all, how precognition relates to the philosophical theses of fatalism and free will and how it bears on the scientific understanding of the nature of the universe. In this chapter I will discuss the relation of precognition to fatalism, free will, and the world-views of classical and contemporary science. I will discuss at some length the problems of fatalism and free will because one of my primary concerns in this dissertation is to show how the explanation of psi phenomena might affect the evolution of the theoretical structure of contemporary science so that in the future there might be a concurrence of opinion between adherents of the scientific world-view and

adherents of certain religious world-views on the existence and nature of free will.

I will proceed in this chapter as follows. First, I will analyze our original definition of "precognition" and discuss the modes of occurrence of precognition. This latter discussion will introduce us to the view that precognition may yield knowledge of future events. Following this discussion, I will examine "perceptual" precognition and show how perceptual precognition may be said to give the precognizer knowledge of future events. This discussion is important, because some of the most intriguing philosophical issues related to the alleged occurrence of precognition, including the issue of fatalism, turn on conceiving precognition as a mode of knowledge of future events. In order to bring out most vividly the fatalistic implications of precognition, I will introduce the concept of a "perfect precognizer," a person who can always accurately predict any event. Then I will discuss two proofs of fatalism, the logical-determinism proof and the causal-determinism proof. If either of these two proofs for fatalism is valid, then the libertarian conception of free will that I have advocated and that could be supported by a suitable scientific concept of the soul would have to be rejected. Because the causal-determinism proof of fatalism is based on a presumption of classical physics, I go on to discuss the knowledge of the Laplacean superbeing, a being who was thought to personify the assumption of causal determinism. For the sake of a better understanding of the nature of the knowledge of future events acquired by precognizers, I contrast the knowledge of Laplace's superbeing with that of the perfect precognizer. In passing, I demonstrate again the incompatibility

of classical physics and precognition. Since many persons have argued that precognition is incompatible with present scientific knowledge, I next discuss contemporary physics at some length. I try to show that contemporary physics does not have the fatalistic implications of classical physics and that contemporary physics might even be compatible with libertarian free will. I conclude the discussion of contemporary physics by stating that even though contemporary physics does not imply the fatalism implied by classical physics, we can accept contemporary physics and avoid the fatalism implied by logical determinism only if we reject logical determinism. I discuss the implications of such a rejection. I conclude the chapter with a discussion of the compatibility of precognition and free will.

I. Preliminary Discussion of Precognition

In this section I will define "precognition," apply the definition to some instances of precognition, and discuss the modes of occurrence of precognition.

A. Definition of "Precognition"

In Chapter One we took "precognition" to mean "the nonsensory and noninferential acquisition of information by a subject about future external objects, states, or events." This definition appears to specify implicitly these singly necessary and jointly sufficient conditions for the occurrence of precognition:

(1) There occurs a prediction, event e_1, at time t_1, and at a later time t_2 there occurs an event e_2 which is the fulfillment of the prediction.[1]

(2) There is a descriptive correspondence between the two events. (This does not mean that the two events--the prediction and

its fulfillment--are descriptively similar but that the description which could be given of the future event offered at $\underline{t}_1$ and which constitutes $\underline{e}_1$ corresponds to--matches in an indeterminate number of ways--the description which could be given of the future event $\underline{e}_2$ at $\underline{t}_2$. Of course, the correspondence can vary greatly depending on the detail of the description given at $\underline{t}_1$.)

(3) The information acquisition of the subject making the prediction is nonsensory and noninferential.

(4) The correspondence between $\underline{e}_1$ and $\underline{e}_2$ is not coincidental.

(5) Events $\underline{e}_1$ and $\underline{e}_2$ are not effects of a common causal ancestor. (This notion of a common causal ancestor may be explained by an example. A cue ball may be struck and in turn hit in rapid succession the eight ball and the nine ball, sinking both. The near-simultaneous sinkings of the eight ball and the nine ball on an otherwise quiet table is not startling, for the sinkings are explicable by the common causal ancestor--the striking of the cue ball.)

(6) The prediction is not self-fulfilling. In other words, no one who knows of the prediction may causally effect the fulfillment, either deliberately or unwittingly. Event $\underline{e}_1$ cannot be a cause of $\underline{e}_2$.

I will now show how spontaneous and laboratory ostensible precognitions satisfy these criteria, taking the former first. For the sake of precision and clarity, I will use an example cited earlier in connection with Vanga Dimitrova, namely, the prediction in 1944 of the death by cancer in 1958 of a gentleman whom we shall designate arbitrarily by the name "Snodgrass." It may easily be seen that this example satisfies all six of the necessary conditions:

(1) Vanga's prediction occurred in 1944. The fulfillment occurred fourteen years later in 1958.

(2) Vanga predicted that Snodgrass would die of cancer in 1958; Snodgrass died of cancer in 1958.

(3) Vanga could neither have sensed nor inferred in 1944 the death of Snodgrass by cancer in 1958, given her four known senses (she is blind) and the information at her disposal in 1944.

(4) Although there are no universally agreed-upon criteria for judging incidents like our example as coincidental or not, we may assume in the study of spontaneous cases the rule that the greater the descriptive correspondence between prediction and fulfillment (and assuming the fulfillment was not inferred), the less likely the correspondence is coincidental. By this rule, the correspondence between Vanga's prediction and its fulfillment was not coincidental.[2]

(5) There is no obvious and plausible common causal ancestor in this case.

(6) We may take it for granted that Vanga could not have caused, and would not have had she been able to, anyone's death by cancer, and from this it follows that she could not have caused Snodgrass's death in 1958 by cancer.

We may conclude, therefore, that our example, if it did in fact occur, was an example of genuine precognition.

Let us now see how an instance of laboratory ostensible precognition may satisfy these criteria. We shall use a Schmidt precognition experiment as our example.[3] In a typical Schmidt experiment the subject presses a button on a metal box to indicate which of four lamps on the box he believes will next be lit up. The sequence of lightings of the lamps is random, being determined by the decay of a radioactive sample. In a long sequence of lightings, each of the four lamps is lit twenty-five per cent of the lightings. All guesses and lightings are electronically recorded automatically.

In a Schmidt experiment two sequences of events occur, a sequence of guesses (prediction series) and a sequence of lamp lightings (target series).[4] The first guess of the prediction series immediately precedes the first lamp lighting of the target series, the second guess immediately precedes the second lighting, and so on. A "hit" occurs when the guessed lamp corresponds to the lamp which comes on immediately after the guess. In a successful experiment the number of hits is

significantly higher than the number expected by chance (twenty-five per cent).

It is worth noting, before showing how the example satisfies the six criteria for genuine precognitions, the advantage which laboratory ostensible precognitions have over spontaneous ostensible precognitions in demonstrating the occurrence of genuine precognition. Almost all spontaneous ostensible precognitions may be rightly challenged as not positively meeting condition (4). Laboratory experiments have an advantage over spontaneous precognitions in this respect, for the former are designed to make possible a quantitative determination of the degree of noncoincidence of experimental results. In a Schmidt experiment, mere guessing would yield almost always very nearly twenty-five per cent hits. The science of statistics enables the experimenter to determine precisely what is the probability that the results of a given experiment were due to chance. When a subject scores significantly in the statistical sense against chance in many experiments, or if in a single experiment the odds against his score being due to chance are extremely high, say a billion to one, then the experimenter is justified in concluding that the subject achieved his scores by some means other than chance.

Consider now a Schmidt experiment in which a subject achieves a score to be expected by chance only once in a billion similar experiments.[5] That this example satisfies our six criteria is easily seen if we read our original statements of the criteria so that they pertain to statistically evaluated series of predictions and fulfillments. This occasions no difficulty. For example, the first criterion would now

read something like "there is a series of predictions the members of which correspond one-to-one to the members of a series of target events, each prediction preceding its corresponding target event." Satisfaction of the criteria by our example seems obvious:

(1) There occurred a series of predictions and a target series.

(2) The prediction series corresponded one-to-one to the target series and a portion of the predictions matched descriptively (prediction button one, say, was pressed immediately prior to the lighting of lamp one) their corresponding target events.

(3) The subject could not have sensed or inferred which lamp was to light after a given prediction, for the lighting was determined after the prediction (which was itself indicated by the pressing of a button) by the unpredictable decay of the atoms of a radioactive sample.

(4) The odds against the result being a coincidence were a billion to one. This suggests that the results of the experiment were not due to chance.

(5) No common causal ancestor can be specified in this case.

(6) The subject could not have affected the decay of the atoms, except possibly by using PK.[6]

We may conclude, therefore, that if we can overcome the difficulties caused by the possibility that PK played a role in the production of the experimental results, then our example would be an example of genuine precognition.

B. Modes of Occurrence of Precognition

Since the most significant philosophical implications of precognition can be derived only by treating precognition as a form of knowledge, we must briefly examine the different modes of occurrence of precognition to see which modes are cognitive.

Laboratory precognition, such as that exhibited by subjects in predicting what type of card will be picked next during an experi-

mental run or which lamp will next glow during a Schmidt-type precognition experiment, is generally noncognitive. Subjects in such experiments rarely have the subjective conviction usually associated with knowledge of facts or events when they make their calls. Their calls during experimental runs are cognitively not different from guesses.[7]

Not all spontaneous precognition is cognitive. There are instances of what we might designate "emotional-motor" precognition in which the precognizer simply performs an action in response to a feeling without being aware that the action is an appropriate one to take with respect to a future event.[8]

To explain instances of precognition in which the precognizer has no conscious apprehension of the particular future event supposedly responsible for his reaction, we might suppose that the precognizer's subconscious mind was somehow affected by the future event and that it, in turn, caused an appropriate reaction in the precognizer. However, it would not be correct to say that the precognizer's subconscious mind had knowledge of the future event. For a person to have knowledge of an event, he must have been conscious during his acquisition of the knowledge. And if a person claims to know now that p, then he must be aware of what p is. These seem to be obvious facts about the concept of knowledge. So if we are tempted to speak of unconscious knowledge of the future in explaining certain instances of precognition, then we are being tempted to expand our concept of knowledge so that the word "knowledge" is used in a new, unordinary way. I conclude, therefore, that only precognitive experiences in which the percipient is aware of his acquisition of information about a future event are experiences

that may properly be described as involving the acquisition of knowledge about the future.

Precognitions occur in several forms that are cognitive, namely, intuitions, realistic dreams, and hallucinations.[9] Precognitions in these forms vary in the extent to which the specific nature of the future event is revealed to the conscious mind of the precognizer. The propositional content of some precognitive intuitions can be expressed only by vague statements such as "Someone I know will die soon." The contents of other precognitive intuitions can be described by highly specific statements. Realistic dreams and hallucinations are often comparable to perceptions in the details of their "perceptual" content, and, consequently, the content of such "perceptual" precognitions can be as fully specified as that of ordinary perceptions.

In summary, the acquisition of information about future events sometimes does, and sometimes does not, involve awareness of the acquisition of information about the future event. Only those modes of occurrence of precognition in which the percipient is aware of the apparent acquisition of information about a future event may properly be described as cognitive. In the following section I will discuss the sense in which these latter types of precognitive experiences constitute knowledge of the future.

II. Precognition as Knowledge of the Future

In this section I will discuss briefly the concept of knowledge and the sense in which precognition constitutes knowledge of the future. Then I will introduce the concept of the perfect precognizer and the problem of fatalism.

A. Knowledge and Precognition

I take it as given, for the sake of the arguments in this chapter, that "knowledge" can be characterized as "justified true belief." Although some philosophers might criticize this characterization as not adequate in all respects, I wish not to enter into any lengthy analysis of and reply to such possible criticisms. In what follows I will explain only very briefly this characterization of "knowledge" and show to what extent precognition can be said to give us knowledge in this sense.

The characterization of "knowledge" as "justified true belief" applies only to propositional knowledge, as opposed to other types of knowledge, such as knowledge by acquaintance and knowledge of how to do something.[10] For me to know that p (where "p" is a proposition), (1) I must believe that p, (2) p must be true, and (3) I must be justified in accepting p. Let us consider an example in order to make this clear. Suppose I claim that I know that a lawnmower sits in my backyard. My knowledge claim is correct provided (1) I believe that a lawnmower sits in my backyard, (2) it is true that a lawnmower sits in my backyard, and (3) I am justified in making the claim that a lawnmower sits in my backyard.

Let us now apply the characterization of "knowledge" as "justified true belief" to an instance of precognition. If a case of alleged precognition is to be regarded as giving the precognizer knowledge of the future, these conditions must be satisfied: (1) the precognizer must believe that his statement S about a future event is true; (2) it must come to pass that the allegedly precognized future event occurs; and (3) the precognizer must be justified in believing S.

Satisfaction of condition (1) occasions no difficulty, for precognizers generally do believe their statements about the future.[11] In the remainder of this chapter we will restrict our attention to hypothetical instances of precognitions with respect to each of which the precognizer does believe that his statement about the future is true.

Condition (2) does not itself present a problem, but it does provide the basis for the problem of fatalism which many people associate with the occurrence of precognition. According to condition (2), not only must it come to pass that the precognizer's prediction is fulfilled, but also it must be the case that his statement S about the future is true at the time he makes it. The statement S must be true at the time he makes it, prior to the occurrence of the predicted event, in order for the precognizer to have knowledge now (the time he utters S) of the future. What precognizers claim, after all, is that they know the future before it comes to pass. They claim to know now what the future will be. Their claims of knowledge about future events are not essentially different from the knowledge claims that all of us make about future events. When I say that I know the sun will rise tomorrow, I am saying, in part, that it is true now that tomorrow the sun rises. The claims of precognizers differ from ordinary claims of knowledge of the future only in that they concern future events about which most of us do not feel justified in making knowledge claims. Now ultimately the added condition that the precognizer's statement S is true at the time he makes it raises the specter of fatalism: if it is true now that, say, I will break my ankle ten days from now, then I am helpless to prevent it breaking ten days hence. The problem of fatalism is more complex than this, and we will discuss it in detail below. My point here

is simply that consideration of a precognizer's claim to knowledge of the future is one means by which we may be led to examine the question whether propositions about future events are true prior to the occurrence of the future events and also a means by which we are led to ponder the problem of fatalism.

Condition (3) presents a problem. We say that a precognizer's belief that a nontautological proposition, S, about the future constitutes knowledge if S is true now (as well as being true when the future event occurs) and if that belief is justified. But when is such a belief justified? The claims of knowledge of the future that most of us make are justified by appeal to known regularities. For example, when I say that the sun will rise tomorrow, my belief that it will rise is justified by my knowledge of its regular pattern of daily appearance. But how can a precognizer's claim to knowledge of the future be justified when the events he predicts are not the sort that occur in regular patterns? (If he did predict a "regular-pattern" event, his knowledge of the future event would be accounted for in terms of his inference from his knowledge of the pattern. It would follow from this and our definition of "precognition" that his prediction was not a precognition.) There seem to me to be two ways in which the precognizer's belief might be justified.

The first way that the precognizer might justify his belief is by appeal to a subjective sign of the truth of his predictive utterance. Suppose that a precognizer had frequent impressions (hallucinations, dreams, or whatever) of future events. Suppose that some of these impressions were accompanied by a distinctive feeling or sensation, such

as a twitch in the right big toe. And suppose, further, that the precognitive impressions accompanied by the feeling were always followed, in due course, by the occurrence of the events to which they referred. We would, I think, use ordinary induction to conclude that the precognizer's distinctive feeling is a reliable mark for determining which of his impressions of future events would be followed by the occurrence of the events to which they referred. If the precognizer were to make knowledge claims about future events by reliance on this reliable mark, he would be justified in making his claims. It would follow, provided the other conditions for a belief to be knowledge were satisfied, that the precognizer had knowledge now (at the time of his predictive utterance) of the future events that he precognized.

If a precognizer does not have a reliable mark to guide him in distinguishing his precognitive impressions from his mistaken impressions, then there is possibly a second way he can justify his belief in the truth of his predictions. He can say that his precognitive impressions are usually correct (let us assume that they usually are) and that, therefore, even though his predictions are not always correct, they are correct often enough for him to be justified in believing any given one of them. Those precognitive utterances that are followed, in due course, by the future events to which they refer would thereby be shown to have been true at the time they were uttered, provided that a proposition about a future event is true before the occurrence of the event. The precognizer could then say that since he believes all his predictions, and since he is justified in believing them, therefore all his predictions that are fulfilled constitute knowledge of the future at the time

they are made.

This second method of justifying belief in predictive utterances is essentially statistical. If a precognizer's predictions were correct only occasionally, there would be no difference in his predictions and those of a person who claimed no special knowledge of the future. Both the precognizer and the nonprecognizer would appear to be making guesses about the future rather than exhibiting knowledge of the future. Only if the precognizer's predictions proved correct in a statistically significant number of cases would there be any reason to say he had special knowledge of the future, i.e., knowledge of future events that are not considered subject to accurate prediction on the basis of ordinary knowledge.

There is no need for us to enter into protracted argumentation over the question whether the justification of a knowledge claim can be statistical. In the remainder of this chapter we will be concerned primarily with a hypothetical precognizer who is always correct in his predictions and who is, therefore, justified in regarding them as constituting knowledge of the future. I know that there are philosophical problems related to the notion of justification. And I know that generally when we speak of a true belief being justified we refer to it being supported or entailed by some other proposition which is known to be true. Even in ordinary language when we claim knowledge of the future we usually justify our claim by appeal to a known regularity. For example, if I say that I know that Snodgrass will go out and get drunk this Saturday night, I justify my claim of knowledge of the future by reference to the fact that Snodgrass has gone out and gotten

drunk every Saturday night since I met him seven years ago. If Snodgrass goes out and gets drunk only an average of nine out of ten Saturday nights, I would say this week only that there is a good chance Snodgrass will booze it up as usual come Saturday, not that I know he will. For these reasons I am not prepared to defend the view that propositional knowledge of the future can be "statistically justified." I have mentioned the view because it comes to mind in the study of precognition and because it is worthy of further study (though not in this dissertation).

B. Knowing the Future Now

I suggested above that if a precognizer's statement S about a future event that will come to pass is true at the time he makes it, then we have an intimation of fatalism. I will now develop this suggestion.

I will begin with a psychological observation about the typical layman (your "average man on the street" or "common man") when he learns of a putative psychic who claims to be able to precognize the future events in the lives of individuals. He becomes excited and wonders whether the psychic could predict his (the layman's) future. The layman seems to conceive the psychic's precognitions as being a most peculiar sort of perception, namely, perception of future events. The layman then, I think, supposes that if the psychic "sees" the future event, then it must in some sense "be there" (in the future) to be seen. And he reasons further that if the event is there in the future, then it will occur when time has passed to the date of the event. The layman also, I think, believes that since the future event is "there" to be

"seen" and since it will occur, there is nothing that can be done to avoid the future event. If the psychic were to make predictions about future events in the life of the layman, and if the psychic had proved himself quite accurate in his predictions, the layman would believe that he had learned of part of his fate.

I think it would be particularly easy for the layman to conclude that all things that happen to all persons are fated to occur, since psychics do sometimes accurately predict the future of some individuals. The inference would not be valid, but its invalidity would not be obvious to a layman suitably impressed by a psychic. Now it is because the typical layman quite likely would suppose a close connection between precognition and fatalism that I think it worthwhile to undertake a philosophical investigation of the possible connection. I think there is a connection between precognition and fatalism, but it is not so obvious as the typical layman might suppose.

I will now examine the connection between precognition and fatalism more fully. It seems to me that the crucial philosophical question in this context is whether a precognizer has knowledge of the future. We discussed this question above. Here I will summarize and then expand upon our earlier conclusions insofar as they bear on the issue of fatalism. First, in order for a precognizer's statement S about a future event to reflect his knowledge of the future event, he must believe S, S must be true both now and when the event occurs, and the precognizer must be justified in believing S. We assume the first condition is satisfied. The second condition can be satisfied if we assume that propositions about events are true or false not only when

the events do or do not occur and after they did or did not occur, but also before they occur or fail to occur. In short, the condition is satisfied if we assume that propositions about events are true or false for all times: if true for any time, then a proposition is true for all times.

This assumption can be explained by a brief discussion of tenseless propositions. A tenseless proposition is one in which the verb occurs tenselessly and the date of occurrence of the event described by the proposition is contained in an adverbial modifier. For example, "Snodgrass dies in 1986" (labeled "S") is a tenseless proposition if the verb "dies" is understood to occur tenselessly. The notion of "tenseless occurrence" of a verb may be explained by reference to mathematical propositions. The proposition "two plus two is four" contains a tenseless occurrence of the verb "is," and this means that the truth of the proposition is not relative to time. Similarly, S, if true, is to be understood as true regardless of when it is uttered.

The use of tenseless propositions ensures clarity in our discussion. Suppose someone predicts in 1976 that Snodgrass will die in 1986. The person will formulate his prediction thus: "Snodgrass will die in 1986." When 1986 arrives, the prediction will be shown true if Snodgrass does indeed die that year, but the proposition "Snodgrass will die in 1986" will not be true, for the death of Snodgrass, in 1986, is no longer future but present. What will be true in 1986 is "Snodgrass dies this year," where "dies" is tensed. If we accept translations of tensed propositions like "Snodgrass will die in 1986" into tenseless propositions like "Snodgrass dies in 1986," we can avoid the confusions

which tensed discourse may cause.

The third condition that must be satisfied for a precognizer to have knowledge of the future is that he must be justified in believing his predictive utterances. Our discussion above showed that the notion of statistical justification of belief in predictive utterances is not obviously acceptable. However, a precognizer's belief in the truth of his predictions is justified if he uses a reliable mark for distinguishing his accurate predictions (those that will be fulfilled) from his inaccurate ones. This reliable mark might be a subjective sign which always accompanies those precognitive impressions of the psychic which are followed by the events to which they refer. Observers of the precognizer would be justified in believing the to-be-fulfilled predictions of the precognizer if the precognizer gave an objective sign to indicate which of his predictions were based on precognitive impressions accompanied by the reliable mark. Both the precognizer and his observers would also be justified in believing his predictions if the precognizer used no subjective sign to identify his accurate precognitive impressions but made, on the basis of such impressions, only accurate predictions. In the latter case the precognizer and his observers could properly claim knowledge of the future.

It is important to realize that if either the assumption of tenseless discourse or the assumption of perfectly reliable predictions is not accepted, then no knowledge (as I defined it) of the future can be claimed, unless one accepts some account of statistical justification of predictions.

I want now to introduce the notion of the perfect precognizer.

A perfect precognizer is a precognizer who makes only accurate predictions, and who can predict any future event. No perfect precognizer exists. However, I will talk about this hypothetical individual because I believe that the typical layman who thinks about precognition sometimes entertains the possibility of a perfect precognizer and supposes fatalism would be true if such a precognizer existed. I will talk about the perfect precognizer also because I think that doing so will aid us in discussing fatalism and free will. I will repeat here that one of my goals in this dissertation is to show how psi phenomena such as precognition bear on the philosophico-religious problem of free will.

Suppose the perfect precognizer exists. Would fatalism then be true? It depends on what we mean by "fatalism." "Fatalism" has been characterized in several ways, and each characterization includes a statement about the efficacy of human decisions and actions. For example, Antony Flew, a contemporary philosopher, says that "to show that human wishes, plans, and decisions do not affect what happens would indeed be to demonstrate a fatalist conclusion; for this is precisely what 'fatalism' means."[12]

Now I do not think we can accept Flew's formulation without qualification, even though his formulation includes a statement about the effects of human decisions. It is patently false that human actions, based on deliberation, have no effect on the world. It is obvious that if I decide to thump my desk, and then thump it, my decision had an effect on the world--it caused a thump. If I decide to drive my car, and then drive it, once again my decision had an effect on the world.

I think the best way to understand fatalism, if we want to

define it, is to note its relation to the concept of precognition. If we view precognition as knowledge of the future, then it must be the case, as our discussions above have shown, that precognized events involving humans will occur as precognized. If a psychic precognizes that Snodgrass will mow his lawn tomorrow afternoon, then Snodgrass will mow the lawn tomorrow afternoon. Fatalism comes into the picture when Snodgrass is informed of the precognition. If Snodgrass believes that the psychic has precognized a future event in his (Snodgrass's) life, then Snodgrass will conclude, if he reasons correctly, that he will mow his lawn tomorrow afternoon no matter what he tries to do or tries not to do. If he tries to leave town, things will work out so that he ends up in his own backyard tomorrow. If he tries not to mow the yard, he will, despite his best preventive efforts, end up mowing it. If Snodgrass had not been told of the psychic's precognition, he might have mowed the lawn without any inner struggle or activation of any wild escape scheme. He then would have believed that he mowed it because he freely decided to do so. Fatalism, then, should be viewed as a thesis about the limits of human action. It is the thesis that we can perform only those actions that we do perform and prevent only those events that we do prevent. Our actions do affect the world, but we are limited in what actions we can perform.

The perfect precognizer and fatalism are related as follows. The perfect precognizer can precognize any event, including any human action. Since every human action can be precognized by the perfect precognizer, no human being has it within his power to perform any action except those actually or potentially precognized by the perfect

precognizer. For this fatalistic conclusion to follow, it must be assumed, let us repeat, that precognition is knowledge and the conditions for its being knowledge are satisfied.

If we adhere to a libertarian conception of free will, we will say that a person has free will if it is in his power either to perform or to refrain from performing a given action. The doctrine of free will, therefore, stands in contrast to the thesis of fatalism, because according to this latter thesis, given any action, a person does not have it in his power either to perform it or to refrain from performing it. "Precognition," "fatalism," and "free will" are, therefore, as I have defined them, all interrelated. We will now discuss two common proofs of fatalism. It will be obvious from the discussion that the premises of the proofs must be rejected if we are to adhere rationally to a doctrine of libertarian free will.

III. Two Proofs of Fatalism

There are two common proofs of fatalism, namely, what I call the "logical-determinism proof" and what I call the "causal-determinism proof." In this section I will present and comment upon these proofs.

Steven Cahn, a contemporary American philosopher, states his definition of "fatalism" as follows:

> Fatalism is the thesis that the laws of logic alone suffice to prove that no man has free will, suffice to prove that the only actions which a man can perform are the actions which he does, in fact, perform, and suffice to prove that a man can bring about only those events which do, in fact, occur and can prevent only those events which do not, in fact, occur.[13]

Since I have characterized "fatalism" and "free will" as contraries, I prefer to view Cahn's definition of "fatalism" as a version

of the logical-determinism proof of fatalism: the laws of logic are correct; therefore, fatalism is true. By the "laws of logic" Cahn refers to such elementary laws of logic as the principle of identity (if a proposition is true, then it is true), the principle of contradiction (no proposition is both true and false), and the principle of excluded middle (any proposition is either true or false). The principle of excluded middle is the basis for the first proof of fatalism. By adding an explicit temporal qualification to the principle of excluded middle, we get what I call the "thesis of logical determinism": every proposition is either true or false for all time. The logical-determinism proof of fatalism is, then, as follows: Every proposition is either true or false for all time; therefore, fatalism is true.

This proof of fatalism can be easily explained in terms of tenseless propositions, introduced above. According to logical determinism every proposition is either true or false for all time. The temporal qualification "for all time" implies that a proposition is true or false for all time regardless of when a sentence expressing the proposition is uttered. So a proposition like S, "Snodgrass dies in 1986," if it is true, is true in 1976 as well as 1986. Now, if S is true for all time, it is impossible that its truth-value may change. Should Snodgrass hear of S in 1976 and believe it desirable to falsify S, then, if S is true, Snodgrass's efforts will be of no avail in making S false. What is it to say that the efforts of Snodgrass are to no avail? It is to say that he does not have the power of free will to alter the future. The future is fated, and this is fatalism.

Let us now turn to the causal-determinism proof of fatalism.

This proof rests on some basic assumptions of classical physics, specifically the assumptions (1) that the universe is composed ultimately only of atoms acting upon one another by specifiable force functions (this is the assumption that the universe is a deterministic system) and (2) that causes always immediately precede or are simultaneous with their effects. From these assumptions we can derive the thesis of causal determinism: the state of the universe at any time is a factually sufficient and necessary condition for the state that immediately follows.

Before considering how causal determinism implies fatalism, let us examine causal determinism in a little greater detail. The most famous description of causal determinism is that given by Pierre Laplace in the preface to a book he wrote on probability theory.[14] Laplace had great confidence in the Newtonians' mechanical system of atoms and forces as an explanatory model of the world. He declared that if a superhuman intelligence knew the positions of all the particles in the universe at a given time and the forces acting upon them, then, provided this superbeing were capable of the calculation, he would be able to know by inference all the past states and future states of the universe. In Laplace's words, for such an intelligence, "nothing would be uncertain and the future, as the past, would be present to its eyes."[15] Of course, Laplace speaks metaphorically here, for if his words were literally interpreted, he would be ascribing supernormal powers of postcognition and precognition, interpreted as modes of perception, to his superbeing. What he means is that if the mechanical state of the universe were known at one instant, all the other instantaneous mechanical states

of the universe could be inferred, for each state is causally conditioned by the one preceding it and causally conditions the one following it.

Two remarks on causal determinism are needed here. First, as just noted, a formulation such as Laplace's (in terms of knowing by seeing) blurs the distinction between knowing the results of precise calculations after putting the initial state values into the appropriate formulas and knowing the actual states of a mechanical system of atoms by "perception." The former is inferential knowledge that such-and-such is the case; the latter is noninferential "perceptual" knowledge that such-and-such is the case. Second, Laplace is mistaken in believing that the whole future and past would be visible to the eyes of his superbeing. If knowledge of initial conditions concerns only the positions and momenta of atoms, then knowledge of other states of the mechanical system will concern only the positions and momenta of atoms. It will not concern such things as chemical, thermal, or magnetic properties. Knowledge of the future or past magnitudes of such properties could be inferred only if it were assumed that their occurrences are explanatorily reducible to the positions and momenta of atoms, and this is an assumption Laplace did not make. It is, of course, an assumption which later causal deterministists, and many contemporary strict physicalists, such as J. J. C. Smart, have made, although these latter have taken the ultimate physical quantities to be those of current physics rather than the positions and momenta of the atoms of mechanistic determinism.

The causal-determinism proof of fatalism is this: causal determinism is true; therefore, fatalism is true. The validity of the

argument depends on the implicit assumption that soft determinism is not the correct solution of the problem of free will, because if soft determinism is the correct solution, then causal determinism can be true without any fatalistic conclusion following from it. The soft determinist would point out that if causal determinism is true, then, although persons are not always free, they are free whenever they perform acts without constraint or compulsion. The soft determinist would then correctly conclude that it is possible for causal determinism to be true and fatalism to be false. For the purposes of this dissertation, I have assumed that soft determinism is not the correct solution of the problem of free will.

That causal determinism is incompatible with the indeterministic solution of the problem of free will is obvious.

That causal determinism implies the denial of libertarian free will is clear from the following considerations. According to causal determinism, each state of the universe is a factually sufficient and necessary condition for the state that follows it. So the sequence of the states of the universe is as fixed as, say, the sequence of integers. As human beings, we can no more modify the sequence of states of the universe than we can modify the sequence of integers. Now we know, in counting integers, that 138 must come directly after 137, if we are counting by ones in proper sequence. If we knew, by precognition, say, a future state of the universe, or, more reasonably, a specific part of such a state, such as an event in someone's life, we could no more act to prevent that event or to make a different event occur in its place, than we could properly count 150 rather than 138 immediately after 137.

This inevitability of sequence of events is precisely what, according to the thesis of fatalism, is the case.

I will now argue that logical determinism and causal determinism yield identically the same fatalism with respect to the power of humans. This is difficult ground, and I think no one should feel sure-footed in this territory. I oppose several eminent thinkers on this issue, and I hope I can show that they do not have a correct view on this matter.

I have defined "fatalism" in only one way, as the thesis that "we (human beings) can perform only those actions that we do perform and prevent only those events that we do prevent." I pointed out that according to the thesis of fatalism it is not the case that our actions have no effects, for they obviously do, but that it is the case that we are limited to performing only the actions we do perform. In discussing the proofs of fatalism I tried to show clearly that this sort of fatalism follows from both logical determinism and causal determinism. I think that most people would agree that, given my approach to the problem of free will, causal determinism does imply "fatalism" as I have defined it. Not so with logical determinism. Several writers have said that the fatalism implied by logical determinism is "trivial."[16] According to R. H. Bradley, a contemporary philosopher, logical determinism tells us nothing, tells us only the tautology that the future will be what it will be and not otherwise.[17] Gilbert Ryle, a British philosopher, has made the same point as follows:

> It is an unquestionable and very dull truth that for anything that happens, if anyone had at any previous time made the guess that it would happen, his guess would have turned out correct. The twin

> facts that the event could not take place without such a guess turning out correct and that such a guess could not turn out correct without the event taking place tell us nothing whatsoever about how the event was caused, whether it could have been predicted with certainty or probability from what has happened before. The menacing statement that what is was to be, construed in one way, tells us only the trite truth that if it is true to say (a) that something happened, then it is also true to say (b) that that original statement (a) is true, no matter when this latter comment (b) on the former statement (a) may be made.[18]

I agree that logical determinism is about the truth of propositions and that knowing that a particular proposition, even one about a future event, is true tells us nothing about how the event is caused. But I think that the etiology of events is irrelevant to the fatalistic implication of logical determinism. What is relevant to it is that the truth or falsity of a proposition about an event depends on the event to which the proposition refers. If I say, "The snows of Mount Everest melt (tenseless) in 1990," then whether the proposition expressed by my utterance is true or false depends solely on what is the case on the upper slopes of Mount Everest in 1990. How the snows of Mount Everest are melted, if they are, is irrelevant. The same consideration applies to the truth or falsity of all propositions about human actions. This does not mean that the perfect precognizer would be forcing anybody to do anything. The knowledge of the perfect precognizer does not itself have any causal effects on the world. The point of the fatalistic argument is that knowledge now of future human actions does not restrict the possible range of future human actions but does restrict the actual power of human beings in particular future situations. On any given morning it is possible for a man to stay in bed or to get up, to shave or not to shave, to eat breakfast or not to eat it, to arrive at work on time or to arrive late. If the perfect precognizer knows on one day

that a certain man will, on the following morning, get up, shave, skip breakfast, and arrive at work late, then that man does not have it within his power not to do any of the things specified. Even if the man knew of the perfect precognizer's prediction, the man would not have it in his power to falsify it. The perfect precognizer would not force the man to do anything. He would simply know (and perhaps report) what the man will do. The fatalistic conclusion follows from the assumption that the perfect precognizer knows the future.

I believe that my position can be reinforced by referring to my earlier comments on the relation between free will and precognition. I pointed out that if we believe it possible that a true proposition about a future event can be known now by a precognizer, then the fatalistic implication of logical determinism will be more apparent. If the perfect precognizer existed and if precognition were regarded as giving knowledge of the future, then human beings would have no choice but to do what the perfect precognizer precognizes them doing.

Similar considerations apply with respect to the causal determinism of classical physics. The Laplacean superbeing knows all future events inferentially. As I have already argued, in the universe of classical physics our actions are fully determined, and so we have no free will as I have defined it.

In the following section we will discuss classical physics, Laplace's superbeing, and the perfect precognizer more fully.

IV. Classical Physics and the Knowledge of the Perfect Precognizer

In this section I will first compare the knowledge of Laplace's

superbeing with that of the perfect precognizer; then I will show that classical physics is incompatible with the knowledge of the perfect precognizer. In the following section I will discuss the compatibility of the contemporary scientific world-view and precognition.

I will begin by stating Bertrand Russell's distinction between knowledge by acquaintance and knowledge by description. Russell says "that we have acquaintance with anything of which we are directly aware."[19] This acquaintance gives us knowledge by acquaintance. According to Russell we have knowledge by acquaintance of sensations, introspections, memories, universals, and possibly our selves. The things we know by acquaintance are present immediately to our minds and we are directly aware of them. Knowledge of things outside our minds, in contrast, is indirect. We know such things as tables, chairs, and other persons by means of the things with which we are directly aware (Russell would probably say that the most important of these latter are sense data and universals), and our knowledge of things outside our minds is "knowledge by description." According to Russell, knowledge by description is essentially inferential, having as its epistemological basis knowledge by acquaintance.[20] We should note, however, that the inference involved in knowledge by description is not like inference in argument. It is an "inference" that we make unconsciously when, for example, we perceive an object.

As I pointed out above, Laplace's superbeing, if he existed, would have inferential knowledge of all future states of the universe. By the results of his calculations he could infer the future positions and momenta of all the atoms of the universe at any given future moment.

He could also infer the magnitudes of such things as chemical, thermal, and magnetic properties, as well as the correct descriptions of microscopic events generally, if he had knowledge of the correspondence rules which link microstates and macrostates. Let us now ask whether the superbeing's knowledge of the present state of the universe is knowledge by acquaintance or knowledge by description. To put the question differently, how could a mind possibly know the present state of the universe? If the superbeing's mind were finite and of limited power like the mind of a human being, his knowledge of the positions and momenta of the atoms of the universe would have to be knowledge by description. But if it were this sort of knowledge, there would be a problem explaining how the superbeing had this knowledge about all atoms at a particular instant. The superbeing would have to have remarkable and unusual powers of perception in order to perceive all atoms simultaneously. Even then, his perception would probably have to be immediate, and perhaps even noncausal in some sense, in order for him to know the positions and momenta of distant atoms. In short, it seems as if he would have to have something <u>approaching</u> knowledge by acquaintance of the positions and momenta of all the atoms at a given instant. It could not be knowledge by acquaintance because the atoms are not immediately present to his mind: they are outside it. It is apparent, then, that the mind of the superbeing would have very nearly infinite scope and power. And the knowledge of the universe possessed by the superbeing would not obviously be either knowledge by description or knowledge by acquaintance.

I venture to say that the superbeing's knowledge of the present

state of the universe would be akin to the paranormal knowledge of a human clairvoyant. A clairvoyant's knowledge is not, strictly speaking, either knowledge by description or knowledge by acquaintance. To make this point clear, I offer this example of clairvoyant knowledge discussed in an article by H. H. Price:

> An old man had disappeared from the village of Cour-les-Barres (in the Department of Cher, in Central France). He was repeatedly and carefully searched for, but could not be found. Mme. Morel, who was in Paris and had never been in the Department of Cher, was given a scarf belonging to the old man, and told to "look for" its owner. She said she saw him lying dead on the ground, in a place which she described in detail. She also gave a detailed description of the appearance and posture of the body. Asked to say how he had got there, she gave a detailed account of the route he had followed, and of his feelings on the way. People on the spot then followed the route Mme. Morel had described, arrived at the place she had described, and found the body lying there. The details she had given about the posture of the body and the clothes were verified exactly.[21]

Let us assume that Mme. Morel had knowledge, albeit unusual knowledge, of the corpse's posture and location. Then her knowledge seems to be knowledge by description, since it is knowledge of something outside her mind. I believe Price is correct in saying that "it cannot be a form of direct acquaintance, an immediate knowledge of a spatially distant object or event, since it is liable to mistakes."[22] But if it is knowledge by description, then it is not just like what Russell called knowledge by description, because it is not acquired by ordinary perception. It is knowledge by description acquired paranormally. The superbeing's knowledge of the instantaneous state of the universe is like a clairvoyant's knowledge of a distant object, for the superbeing and the clairvoyant both have knowledge of things outside of and distant from them (assuming the superbeing is a finite being). The superbeing differs from an ordinary clairvoyant in that the superbeing is able to

know at once an indefinite number of things whereas a clairvoyant consciously apprehends only one or a few things at a time.

The perfect precognizer's knowledge of the future differs from the superbeing's knowledge of the future in that the former is not the result of a deductive inference whereas the latter is. If the perfect precognizer "sees" the future in the way that an ordinary clairvoyant "sees" a distant object, then we can say that the perfect precognizer has paranormal "perceptual" knowledge of future objects and events just as the clairvoyant has paranormal "perceptual" knowledge of present objects and events. I put the word "perceptual" in quotation marks to indicate that the information acquisition technique used by clairvoyants and precognizers is not perceptual, but is somewhat like perception. Assuming that some sort of representative, causal theory of perception is correct, then we can say that in ordinary perception the object perceived is the beginning of a spatio-temporally continuous causal chain which results in the excitation of certain centers in the brain. The nervous excitation <u>is</u> the mental image or sense datum representing the perceived object, if the identity theory is correct (the identity theory being the theory that the referents of certain nonsynonymous mentalistic and physicalistic terms are identical); the nervous excitation produces or corresponds to the mental image or sense datum if a dualistic theory of mind and body is correct. <u>Prima facie</u> a precognizer's acquisition of information about a future event is like ordinary perception when such information acquisition results in the production of a mental image (the image in the mind's eye of a psychic). A notable difference between ordinary perception and a psychic's "perception"

is that we possess some scientific understanding of the causal processes involved in ordinary perception whereas we can only speculate how a psychic "sees" a distant object or future event. Now the perfect precognizer's knowledge of the future would be knowledge by description acquired paranormally. No process of conscious inference is involved in the perfect precognizer's "perceptual" knowledge of future events. In contrast, the superbeing has to deduce everything he knows about the future from what he knows about the present state of the universe.

I am not sure that a causal explanation of precognition will ever be given. However, I am certain that a causal explanation of precognition cannot be given within the context of the world-view of classical physics. This is relatively easy to demonstrate, because precognition as I have defined it is manifestly incompatible with two of the basic postulates of classical physics. I will here present a more refined proof of the incompatibility than that given in Chapter Two.

Suppose the perfect precognizer exists (actually the assumption that there is one genuine case of precognition, as I defined it, is enough to make my point) and that he has paranormal "perceptual" knowledge of future events. What sort of causal explanation could be given of the perfect precognizer's precognitions? In a genuine precognition we have two events, the precognitive utterance (call it "event x") and the fulfilling event (call it "event y"). It is logically possible for two events, x and y, where x precedes y, to be causally related in one of three ways: (1) x might be the cause of y in the sense that x initiates a chain of events culminating in y. (The chain might have only one member, y); (2) x and y might have a common causal ancestor

which initiates two independent causal chains, x being a member of one chain and y of the other; (3) y might be the cause of x, despite x's preceding y.[23] The last of these possible relationships is incompatible with the causal principle of classical physics that a cause must be either prior to or simultaneous with its effect. The first two of these causal relationships are incompatible with our definition of "precognition," for we said that in a genuine precognition the prediction and its fulfillment cannot have a common causal ancestor and the prediction cannot cause the fulfillment. It follows that precognition, as I have characterized it, cannot be given a causal explanation within the context of classical physics.

Classical physics has been supplanted in the twentieth century by contemporary physics, the physics of relativity and quantum mechanics. Classical physics, as I have shown, implies fatalism because it assumes causal determinism. We turn now to contemporary physics to see whether it avoids fatalism and leaves room for free will.

V. Contemporary Physics, Fatalism, and Free Will

I embark on a discussion of contemporary physics with some trepidation, because I am not a physicist and do not pretend to have a good grasp of theoretical physics. This discussion is necessary, however, if we wish to have a complete picture of how psi phenomena, precognition in particular, bear on the issues of fatalism, free will, and the possible reconciliation of scientific and religious world-views. So in this section I examine quantum mechanics and relativity theory and try to show how these two fundamental theories of contemporary physics possibly avoid, or can help us avoid, the fatalism entailed by

causal determinism and logical determinism and make room thereby for free will.

A. Quantum Mechanics and Indeterminism

For more than fifty years physicists and philosophers have debated whether quantum mechanics is deterministic or indeterministic and whether quantum mechanics has any bearing on the free-will problem, and if it does, what that bearing is. The literature that has emerged from these debates and general discussions is immense, and philosophers continue to write a great deal about the relationships of contemporary physics, determinism, and free will. It is beyond the scope of this dissertation to present a detailed analysis of this scientific and philosophical literature. In this section I will only make a few points about quantum mechanics and suggest how possibly it bears on fatalism and free will.

In order to understand why it is often said that quantum mechanics is indeterministic, it will be helpful to make some general remarks about determinism. We can view "determinism" as a thesis either about the constituents of a physical system or about the structure of theories. In our discussion of causal determinism above we implicitly assumed that "determinism" is a thesis about the constituents of a physical system, for we spoke of physical states of the universe determining their successors. Let us now see what "determinism" means if it is a thesis about theories. According to Ernest Nagel, an American philosopher of science, "a theory is deterministic if, and only if, given the values of its state variables for some initial period, the theory logically determines a unique set of values for those variables for any

other period."[24]

That classical mechanics is a deterministic theory in Nagel's sense is easy to see. The state variables that Nagel refers to in his definition of "determinism" are the variables defining the mechanical state of a system. In classical mechanics the defining variables are the positions and momenta of the particles constituting the physical system. If the force function is given for the system, then the mechanical state of the system is completely and uniquely determined by the mechanical state at some arbitrary initial time. Hence, classical mechanics is a deterministic theory.

It is apparent that the quantum theory is not a deterministic theory in the same respect that classical mechanics is. This is because, according to the Indeterminacy Principle (a fundamental principle of quantum theory as presently formulated), we cannot in principle measure simultaneously the precise position and momentum of any subatomic "particle."[25] If we measure one of these variables exactly, our measure of the other at the same instant must be infinitely imprecise. It follows that if we take the positions and momenta of subatomic "particles" as the state variables of a quantum mechanical system, then we cannot obtain all the values of the state variables at any instant. So unique state variables and unique mechanical states for any other instant can not be derived from those at a given initial instant. Therefore, if the state variables of a quantum mechanical system are given as the positions and momenta of subatomic "particles," the quantum theory is not a deterministic theory.

It turns out, however, that the quantum theory is deterministic

with respect to its own state variables, rather than those of classical mechanics. Nagel makes this point as follows:

> An examination of the fundamental equations of quantum mechanics shows that the theory employs a definition of state quite unlike that of classical mechanics, but that relative to its own form of state-description quantum theory is deterministic in the same sense that classical mechanics is deterministic with respect to the mechanical description of state. . . . In the Schrödinger or wave mechanical formulation, quantum theory employs as the state-description of a system a certain function, the so-called "Psi-function." . . . Given the values of the function for each point of the region at some initial instant, the Schrödinger wave equation determines a unique set of values for the function at any other instant. Quantum mechanics is therefore a fully deterministic theory with respect to the quantum mechanical state-description defined by the Psi-function.[26]

So quantum theory is deterministic, but not with respect to the positions and momenta of the particles of classical mechanics. We need now to ask whether the causal determinism of classical mechanics, which implies fatalism, holds for the subatomic "particles" of quantum mechanics despite the Principle of Indeterminacy. The answer is, "No." But this answer must be qualified. Quantum theory does not postulate any "particles" like those of classical mechanics. Therefore, insofar as the thesis of causal determinism relies on the conception of particles like point-masses (I think it relies essentially on this conception), it cannot apply to the subatomic elements of quantum mechanics. However, quantum theory as presently formulated might not be the last word on atomic physics. David Bohm's "hidden-variable" view that there might be a subquantum level the individual elements of which can be described deterministically (as the particles of classical mechanics are described) rather than only statistically (as quantum theory describes subatomic "particles" now) might be vindicated.[27] If this occurred, then causal determinism might be reinstated at the subatomic level.

Despite this possibility, many commentators say that the quantum theory is indeterministic in the sense that its state-description is associated with a statistical interpretation and that its predictions are based on statistical assumptions. The Psi-function characterizes subatomic processes only with respect to some of their statistical properties. It seems to be the case, therefore, that according to quantum theory the behavior of individual subatomic "particles" is indeterministic. This certainly is Bohm's view, for he says that according to the usual interpretation of the quantum theory, the behavior of subatomic "particles" is due to "absolute chance."[28] It must be noted against Bohm, however, that some commentators do not accept an indeterministic interpretation of quantum theory's account of subatomic "particles." Mario Bunge, a philosopher-physicist, says that "the positivistic philosophy built on (and partially built into) the usual interpretation of the quantum theory, eliminates determinism--but, then, also indeterminism--in the ontological sense, that is, in connection with the behavior of the things themselves, as they exist whether observed or not."[29] The positivists, says Bunge, refuse even to speak of matter existing at the subatomic level.

I am not positive how we should view the behavior of subatomic "particles." In fact, my leanings are not positivistic at all. I prefer to side with Bohm on the ontological question, but not on the indeterminacy question. I think that entities really exist at the subatomic level, and I think that quite possibly their behavior is to some extent indeterministic. I wish now to show how such a realist and indeterminist approach to quantum theory bears on the problem of free will as I

have set it up.

First, let us consider the compatibility of this approach to quantum theory with the two other solutions of the free-will problem. If the behavior of subatomic "particles" is indeterministic, then it would seem that we must reject soft determinism, for this solution of the free-will problem assumes the truth of determinism. This rejection, however, is too facile. Soft determinism is an interpretation (many philosophers would say the correct interpretation) of the problem of human freedom which avoids the difficulty created by causal determinism by contrasting the notion of "free" with that of "constrained" or "compelled." It seems irrelevant to the intent of this solution of the free-will problem whether causal determinism or indeterminism be true. So soft determinism seems compatible with quantum mechanics no matter how the behavior of subatomic "particles" is viewed. However, as I said before, I prefer a different solution of the free-will problem.

Indeterminism clearly is a solution of the free-will problem compatible with the quantum theory. It might well be that the behavior of subatomic "particles" reflects "absolute chance," as Bohm would say. However, I reject this solution of the free-will problem because I do not believe that it permits us to attribute responsibility to moral agents.

It remains to consider libertarianism. A libertarian, as an indeterminist, says that not all physical states are factually sufficient for producing the states that follow them. As a libertarian he says that some physical states are produced, at least in part, by the free acts of agents who have an influence upon the physical world. According to some libertarians, these agents are souls, entities who in some sense

are nonphysical. Since souls are nonphysical, their acts are not fully determined by the physical world (specifically, the three-dimensional world of present science). Now if we accept an indeterministic interpretation of the quantum theory, quantum theory will be compatible with libertarianism. If we conceive a nonphysical soul ("nonphysical" in one of the senses specified in Chapter Three) acting upon the physical world at the subatomic level, then it seems that we can blend the free acts of a soul into the workings of the physical world. The interaction of souls with the physical world, presumably in brains, will be precisely where, according to the quantum theory, causal determinism appears not to hold, namely at the subatomic level of physical reality.[30]

If we accept an indeterministic interpretation of quantum theory, causal determinism is rejected and along with it goes the causal-determinism proof of fatalism. The universe would no longer be considered a completely deterministic system. Future states of the universe, even if souls and free will did not exist, would not be precisely predictable. The foreknowledge of Laplace's superbeing would, therefore, be ruled out. The superbeing would not be able to infer all future events.

Would the perfect precognizer's knowledge of the future be ruled out? No. His knowledge of the future does not depend on the assumption of causal determinism. Even if the thesis of causal determinism of classical physics is false, the perfect precognizer might still obtain paranormal knowledge of the future. How he would get it we do not know, but get it he might. Hence, if we grant that the perfect precognizer can have knowledge of any future event, then fatalism

is entailed no matter how the behavior of subatomic "particles" is interpreted, assuming the truth of logical determinism. The only way to avoid the fatalism implied by the perfect precognizer's knowledge of the future is to reject the thesis of logical determinism, for then we could not say that the perfect precognizer has knowledge now of future events. We will consider this rejection in detail after examining relativity theory.

B. Relativity Theory and Fatalism

Commentators on the theory of relativity often use the notion of the four-dimensional space-time manifold to explain the theory. They describe the manifold as a four-dimensional geometrical structure constituted by the three dimensions of ordinary space, each at right angles to the other two (for simplicity we will speak in terms of a Euclidean structure, even though relativity theory utilizes non-Euclidean geometry), plus time as a fourth spatialized dimension at right angles to the other three. In a graphical representation of the manifold, time is usually represented by a line. The points of the line correspond to instants of time. Since an infinite number of instants of time, including future instants, can be represented by a given line, all the points of which exist simultaneously, it is easy to regard the graphical representation as picturing past and future instants as existing simultaneously with the present. Such a representation can, therefore, suggest that future events are as fixed as past events, and this suggestion reintroduces the fatalism that we managed to avoid by adopting an indeterministic interpretation of subatomic "particles." It behooves us, therefore, to discuss the four-dimensional space-time manifold and

to try to achieve thereby a final resolution of the problem of fatalism. I will argue that if the four-dimensional space-time manifold is regarded as a reality, fatalism is implied; and if the four-dimensional space-time manifold is regarded as a representation only, fatalism is still implied. I will conclude that fatalism can be avoided only by rejecting both a realist interpretation of the four-dimensional space-time manifold and logical determinism, and I will then discuss the implications of these rejections for the concept of free will.

Suppose the four-dimensional space-time manifold is a reality, that is, suppose that time is just as genuinely a spatial dimension as are the other three dimensions of space. Then, just as we view the ordinary three dimensions of space as infinitely extended at each instant of time, we will view the four dimensions of space-time as infinitely extended "at each instant of time." However, since time is one of the four dimensions we are "viewing," our view of the four-dimensional space-time manifold must be from a second, imagined temporal dimension. A second time is required here, because the mental process of "viewing" must be in time. To view all of time as given in an instant, somewhat as we look at the whole length of a yardstick at a glance, our minds must be "viewing" from a second temporal dimension.

At any given instant of the second temporal dimension (assuming, without arguing the point, that it makes sense to speak of a second temporal dimension), the four-dimensional space-time manifold is viewed as a static, infinite four-dimensional manifold, just as, at an instant of ordinary time, everything in three-dimensional space is "motionless." Assuming the four-dimensional space-time manifold is a reality, then,

we get a picture of the universe as a static and motionless whole. At an instant in the second temporal dimension, any event that ever has occurred or that ever will occur can be "seen" as existing simultaneously with all other events of the four-dimensional world. In the words of the physicist-philosopher, Sir James Jeans, if the four-dimensional space-time manifold has "a real existence . . . , the whole history of the universe, future as well as past, is already irrevocably fixed."[31]

If we assume that the four-dimensional space-time manifold is a reality, it seems we must conclude that a sort of "ontological" fatalism similar to that of classical physics is implied. According to the assumption of causal determinism of classical physics, the universe is a physical system all the future states of which are fixed by past states. Similarly, if we assume the reality of the four-dimensional space-time manifold, all "future events" (that is, all events that are later than--further down the time axis--than an arbitrarily selected "present event") are as fixed as are all "past events" (all events that are earlier than an arbitrarily selected "present event").[32]

Most philosophers and physicists regard the four-dimensional space-time manifold not as a reality but as a representation, that is, a theoretical construct for working with problems in relativity theory. I would suggest that we can identify those philosophers and physicists who regard the four-dimensional space-time manifold as a representation rather than a reality by checking on their conception of time. Those who say time is real and ontologically distinct from space are those who regard the graphical representation of time (as a fourth spatialized dimension) as a useful device. These writers will, as J. J. C.

Smart does, tend to argue against the plausibility of there being multiple dimensions of time.

I will now argue that, even if the four-dimensional space-time manifold is regarded as a representation rather than a reality, fatalism is still entailed. I will argue specifically against J. J. C. Smart, who says this:

> The tenseless way of talking which is appropriate to the four-dimensional space-time world seems to suggest to some people that some sort of fatalism must be true, and that the future is already somehow "laid up." This, however, is a confusion, for the "is" in "is already laid up" is a tensed one and suggests that the future exists now, which is absurd. The events of the future, like those of the past, certainly exist, in the sense in which this verb is used tenselessly, but of course they do not exist now.[33]

Smart's point in this passage is that future events do not exist now but rather at the time at which they occur. If we said that a future event exists now, we would be saying that it exists at the time of our utterance rather than at the later point in time at which it does occur. Now it is absurd to say that the same event occurs at one time and also at an earlier time. Given a single temporal dimension, it makes no sense to say that the same event occurred in 1950, say, and also in 1980, because events are identified by their positions in time. But it is not absurd to speak of two events at different points of a single temporal dimension existing "now" if we introduce a second temporal perspective. The two events will still, with respect to the first temporal dimension, occur at different times, but they will be able to "occur" simultaneously as part of a four-dimensional space-time manifold if viewed from a second temporal perspective. Smart believes that the introduction of higher dimensions of time leads to an infinite regress, and so he sees "no reason to postulate such an entity as a hyper-time."[34] By "hyper-time"

he means a "higher temporal dimension." But a hyper-time is not manifestly absurd. And I suggest that one reason for introducing such a time is that it enables us to see how we can speak intelligibly of the future existing now.

Since I am not prepared to defend in detail the claim that multiple temporal dimensions are possible, I will take a different tack in showing that Smart is wrong in thinking that the tenseless way of talking does not entail fatalism. I argued earlier that logical determinism entails fatalism. I said that if propositions about the future are true or false now, then if truth-values of propositions do not change, the actions of human beings will be of no avail in modifying the truth-values of propositions about the future. Fatalism follows immediately. The further point I wish now to make is that the truth or falsity of a proposition about the world depends on what is the case, or, for propositions about future events, what will be the case. If it is true now that the snows of Mount Everest melt (tenseless) in 1990, and if the truth-values of propositions do not change, then in 1990 it must be the case that the snows of Mount Everest are melting (tensed). Smart's comment about future events not existing now is beside the point with respect to the fatalistic implication. Surely it is true that the snows of Mount Everest are not presently melting, but if it is true now that they will melt, then they definitely will melt (provided truth-values of propositions do not change).

What we must get clear on is this. If we treat the four-dimensional space-time manifold as merely a representation, a way of picturing the close link between time and space in the theory of relativity,

then we need not think that the future is "laid up." However, if we use tenseless discourse in trying to catch the "flavor" of this representation, then, if we also assume the truth of logical determinism, we will not be able to avoid fatalism. It does not follow that we cannot use tenseless discourse in discussing the four-dimensional space-time manifold if we wish not to be fatalists. We can, like Smart, use tenseless discourse in such discussions and avoid fatalism, but only if we reject logical determinism. This is a point I will return to shortly. First, I want to discuss briefly a correct claim that Smart makes about the four-dimensional representation of the universe.

Smart says that the four-dimensional picture

> is quite neutral between determinism and indeterminism. The issue between determinism and indeterminism can be put quite easily in the language of space-time. It is as follows: From a complete knowledge of a certain three-dimensional (spacelike) slice of space-time together with a knowledge of the laws of nature, could the properties of later (and indeed earlier) slices of space-time be deduced? For present purposes let us be agnostic as to the answer to this question.[35]

Smart is correct in saying that the four-dimensional representation of the universe is neutral between determinism and indeterminism. This neutrality shows that the four-dimensional representation of the universe does not imply the same sort of "ontological" fatalism as is implied by both causal determinism and the realist interpretation of the four-dimensional space-time manifold. If the four-dimensional space-time manifold is a mere representation, and if subatomic "events" are indeterministic, then future events neither already exist (from the viewpoint of a second temporal dimension) nor are sufficiently and necessarily conditioned by prior states of the universe.

C. The Escape from Fatalism

I have argued that we can escape the fatalism implied by causal determinism if we accept an indeterministic interpretation of the behavior of subatomic "particles." I have also argued that if we accept logical determinism and reject all but the libertarian solution of the free-will problem, then we must accept fatalism. I see no way to avoid the fatalism implied by logical determinism except to reject logical determinism. Many philosophers, possibly beginning with Aristotle,[36] have rejected logical determinism as applied to propositions about future events in order to avoid fatalism. We will now examine this rejection and its implications.[37]

We can reject logical determinism (and obviate the logical-determinism proof of fatalism) simply by accepting the counterclaim that propositions about the future are neither true nor false but are indeterminate in truth-value. Let us call this counterclaim the "thesis of indeterminate truth-value." Steven Cahn accepts the thesis of indeterminate truth-value in Fate, Logic, and Time[38] in which he thoroughly analyzes the problem of fatalism. He also claims in that book that in accepting the thesis of indeterminate truth-value we assign a truth-value to propositions about the future, thus ensuring that they are meaningful.

The rejection of logical determinism allows for the possibility of free will, and the rejection has these implications:

(1) A three-valued logic applicable to propositions about the future can be worked out. Some twentieth-century logicians, such as Jan Lukasiewicz and A. N. Prior, have created and developed systems of three-

valued logic "specifically for the purpose of providing a logical framework for Aristotle's doctrine of future contingencies."[39] According to these systems, propositions about future events have indeterminate truth-values (i.e., a third truth-value, in addition to the normal "true" and "false," called "indeterminate") prior to the occurrence of the events they describe. The truth-value of a proposition about a future event changes to either true or false at the time of occurrence of the event, and it remains true or false thereafter. The truth-values of propositions, therefore, are subject to change.

(2) The modalities of propositions change. Propositions about the future are contingent, that is, they are not necessary. (They would be necessary if the doctrine of fatalism were true.) At the time of occurrence of the event described by a proposition, the modality of the proposition changes from contingent to necessary (but not logically true), for once the event is in the past, its truth-value is unalterable.

(3) Time is real. This means that time is efficacious, for it is the passage of time, and that alone, which allows us to say that the truth-value and modality of a proposition can change. As Cahn puts it,

> if time is but a "superficial" aspect of reality, if a true proposition must be eternally true, if the "facts" are "spread out eternally," then the time at which a proposition is stated has no relevance to its truth-value or modality.[40]

If a proposition's truth-value and modality are subject to change, then time can be neither superficial nor unreal.

(4) Precognition could not be viewed as giving knowledge now of the future. To know now that p, where p is a proposition about a

future event, p must be true now. If we reject the applicability of the law of excluded middle to propositions about future events, then those propositions cannot be true now and we cannot know them now.

It does not follow from the rejection of logical determinism that precognition is not possible. In fact, even the existence of a perfect precognizer would still be possible. If he existed, we would be justified, by his accuracy and range, in accepting any prediction he made. But we could not view his success as providing knowledge of the future if we viewed propositions about future events as being of indeterminate truth-value.

If we accept the thesis that propositions about future events are of indeterminate truth-value and accept the supposition that sub-atomic processes are indeterministic, then we allow for the possibility of libertarian free will. As our discussion of the main pillars of twentieth-century physics has shown, this procedure is consistent with current physical theory. I conclude that free will is compatible with contemporary science. I will now draw this chapter to a close with some final remarks on precognition and free will.

VI. The Compatibility of Precognition and Free Will

I do not think we need to agree with the typical layman that if precognition occurs at all then we should fear that fatalism is true and that we have no free will. I believe that precognition and free will are compatible. I will now show how they are compatible.

Suppose that a perfect precognizer does exist. He would have it within his power to predict every future event, including every future human action. But suppose that we reject the thesis of logical

determinism by saying that propositions about future events are neither true nor false but are indeterminate in truth-value. We could then say that the perfect precognizer had no knowledge of the future despite his accurate predicitons. He might be justified in believing his predictions, but none of them would be true until the predicted events occurred. Since he would have no justified true beliefs about future events, he would have no knowledge of future events. We could say that when the perfect precognizer forecasted a future human event that a particular human being deliberately tried to bring about by his free will and succeeded in bringing about, then it was the free will of the human being that was responsible for changing the truth-value of the proposition about the event from indeterminate to true.

There is one difficulty in this approach to showing the compatibility of precognition and free will. Suppose the perfect precognizer predicted for a certain person, say Snodgrass, a misfortune of a type generally regarded as preventable when proper precautions are taken. Snodgrass, a well-informed individual, has heard of the uncanny accuracy of the perfect precognizer, and being the sort of person who tries to avoid misfortune, he tries to avoid the predicted misfortune. It would seem that if Snodgrass had free will, then there would be a good chance that he would avoid the misfortune. What we mean by saying that people have free will is that they have the power to bring about alternative sequences of events in spite of the particular state of the universe that obtains when they make their decisions. If Snodgrass and all others like him consistently failed to bring about alternative sequences of future events when faced with unpleasant predictions by the

perfect precognizer, I think we should be inclined to conclude that people do not have free will in the sense specified, even if we rejected logical determinism as applied to predictions.

Now an obvious fact about the world is that no perfect precognizer exists. So to some extent all my remarks about him have been purely academic. They have been profitable nevertheless, for by using the concept of the perfect precognizer we have been able to clarify the arguments about fatalism. I wish now to consider the compatibility of free will with the limited amount of genuine precognition that does, I believe, occur.

Consider a precognizer who has enough success at predicting the future that we are compelled by the evidence to believe that he does precognize future events.[41] Consider now those predictions made by the precognizer of preventable personal misfortunes. Suppose, further, that the persons for whom the misfortunes are predicted are always informed of the predictions. If some of these predictions are ostensibly falsified by the deliberate action of the persons about whom they are made, I think we would have some evidence that these persons exercised free will to shape the future to their own liking (so far as this is possible by human action). We would have some evidence, I say, but it would not imply that persons have libertarian free will, and this for two reasons. First, it would only show that precognition and free will, libertarian free will in particular, are compatible (and this is what I was trying to show). Second, we could always suppose that the "channels" used by the precognizer to acquire information about the future are imperfect, so that his misses could be explained as due to this imperfection rather

than to the exercise of free will by certain persons. To me, however, this explanation seems too well-designed to fit precisely these results, because the counterexplanation in terms of the imperfect channels is appealed to always and only when the precognizer misses. I would be inclined to reject it, therefore, as ad hoc.

The philosophical implications of precognition, especially those pertaining to epistemology and the concept of causality, are much more complex than the specific implications I have treated in this chapter. My limited discussion of a few of the philosophical problems related to precognition has shown, I believe, that it is possible to avoid accepting the fatalistic implications sometimes thought to be implicit in the occurrence of genuine precognition. The discussion has also shown that free will is a concept compatible with the basic theories of contemporary science.

In the next chapter we will examine a few theories that have been advanced for explaining psi phenomena. We will see how these explanations might aid in the reconciliation of scientific and religious beliefs about souls and free will.

ENDNOTES TO CHAPTER IV

1. I shall often use the word "event" as a catchall term for such words and phrases as "process" and "state of affairs."

2. Not all people will agree that condition (4) has been satisfied by this example. Those who do not will not admit that it is a genuine precognition. Condition (4) will be further discussed below.

3. Schmidt briefly describes his precognition experiment in "A Quantum Process in Psi Testing," in Progress in Parapsychology, ed. J. B. Rhine (Durham, North Carolina: The Parapsychology Press, 1973), pp. 28-35.

4. It must be emphasized that the target series in a Schmidt experiment is random in the mathematical sense: no pattern in the sequence of lightings of the lamps occurs. If lamp #1 is lit first in a sequence, each of the four lamps has a twenty-five per cent chance of being lit second, each of the four lamps has a twenty-five per cent chance of being lit third, and so on. It is therefore impossible for a person to note, either consciously or unconsciously, a pattern in the lighting and on the basis of such an "observation" start calling the pattern as it appears in future portions of the sequence.

5. In some of Schmidt's experiments subjects did score at the level of a billion to one against chance. See H. Schmidt, "Precognition of Quantum Processes," Journal of Parapsychology, XXXIII (1969), 99-108.

6. The possibility of appealing to PK as a counterexplanation in interpreting ostensible precognitions, either spontaneous or laboratory, will be discussed below.

7. K. Ramakrishna Rao discusses this psychological aspect of psi phenomena in Experimental Parapsychology (Springfield, Illinois: Charles C. Thomas, 1966), pp. 111-116. Rao notes that there have

been a few rare cases recorded in which subjects did seem to have some conscious awareness of which of their calls were correct.

8. Louisa E. Rhine reports the case of a salesman who lived in St. Louis but who was on business in Arkansas. He went to bed expecting a good night's sleep, but as the night wore on he remained awake. An urge to return to St. Louis overcame him and he caught the next train home. When he arrived home some hours later his brother informed him that their father had died just one hour earlier. Hidden Channels of the Mind (New York: William Sloane Associates, 1961), p. 70.

9. Louisa E. Rhine discusses these forms of occurrence of precognition in Chapter Eleven of ESP in Life and Lab (New York: Collier Books, 1967).

10. Bertrand Russell has made a distinction between knowledge by description and knowledge by acquaintance in The Problems of Philosophy (New York: Oxford University Press, 1959), Chapter V. This distinction has been criticized by contemporary philosophers: Anthony Quinton criticizes it in "Knowledge and Belief," in the Encyclopedia of Philosophy, ed. Paul Edwards (New York: Macmillan Publishing Co., 1967), IV, 350. I do not wish to offer a defense of Russell's distinction though I shall accept it in this dissertation. I mention it because it marks off a type of knowledge, knowledge by acquaintance, that many philosophers, including C. D. Broad and H. H. Price, have thought ought to be distinguished from other types of knowledge. I will make use of the distinction later in this chapter. Gilbert Ryle has discussed knowledge as knowing how, in The Concept of Mind (New York: Barnes and Noble, Inc., 1949), Chapter II.

11. Not all precognitions considered by parapsychologists are such that the precognizers believe a precognitive utterance. The "emotional-motor" type of precognition, mentioned above, constitutes a group of exceptions. Other exceptions are all apparent precognitions with respect to which the precognizer does not claim that he has a feeling of belief. A psychic who misses a lot in predicting the future might get to the point that he believes none of his predictions and simply waits to see which are fulfilled. None of such a psychic's apparent precognitions would give him knowledge of the future.

12. "Precognition," Encyclopedia of Philosophy, IV, 438.

13. Fate, Logic, and Time (New Haven: Yale University Press, 1967).

14. The English translation of the title of this book is A Philosophical Essay on Probabilities.

15. Quoted in "Pierre Simon de Laplace," by R. Harré, Ency. of Phil., V, 392.

16. W. V. O. Quine, the eminent logician, told me on April 3, 1976 at a colloquim sponsored by Oklahoma University that this is his view.

17. "Must the Future be What it is going to be?" Mind, LXVIII (1959), 208.

18. Dilemmas (Cambridge: Cambridge University Press, 1954), pp. 22-23.

19. The Problems of Philosophy (New York: Oxford University Press, 1959), p. 46.

20. Russell's distinction has been challenged and criticized. (See endnote 10 of this chapter.) I will not defend it, although I think it comes close to the truth. I use it because it provides a suggestive way to contrast the knowledge of the superbeing and the perfect precognizer.

21. "Some Philosophical Questions About Telepathy and Clairvoyance," originally in Philosophy, 1940, reprinted in Philosophical Dimensions of Parapsychology, ed. Hoyt L. Edge and James M. O. Wheatley (Springfield, Illinois: Charles C. Thomas, 1976), pp. 122-123. Price says that he quoted the story from G. N. M. Tyrrell's Science and Psychical Phenomena, pp. 34-35, and that Tyrrell got the story originally from Dr. Osty, who was a famous French psychical researcher in the early twentieth century.

22. Ibid., p. 124.

23. Not all philosophers agree that a cause can follow its effect. For a book-length discussion of recent philosophical arguments on this question insofar as it bears on the concept of precognition, see Robert Brier's Precognition and the Philosophy of Science (New York: Humanities Press, Inc., 1974). We should note that, strictly speaking, there are logically four ways that two events can be causally related, the fourth being that the two events might have a common causal "descendant." The descendant would produce both events by backward causation. We will ignore this fourth possibility.

24. The Structure of Science (New York: Harcourt, Brace & World, Inc., 1961), p. 292.

25. I put the word "particle" in quotation marks because the subatomic elements of quantum mechanics are not the particles of classical mechanics. The elements of quantum mechanics have both wave-like and particle-like properties; they cannot be pictured as exclusively either waves or particles.

26. Nagel, op. cit., p. 306.

27. For Bohm's view, see his book Causality and Chance in Modern

Physics (London: Routledge and Kegan Paul, 1957). Despite Bohm's desire to give a causal account of the subatomic elements by means of his "hidden-variable" approach, he attempts to transcend mechanism philosophically. See the last chapter of the book cited for his complete statement of his view.

28. Ibid., pp. 62-64.

29. Causality (Cleveland: The World Publishing Company, 1959), pp. 15-16. Italics in original.

30. The eminent physiologist Sir John Eccles has advanced the theory that a "will-influence" could affect a single neuron in a brain so that considerable brain activity, and consequent bodily behavior, results. (See the discussion in Arthur Koestler's The Roots of Coincidence, pp. 73-76.) If we assume that the indeterministic behavior of a few electrons could affect the discharge of a single neuron, we see how a soul influencing the physical brain at the subatomic level could produce macroscopic behavior resulting from the exercise of free will.

31. Physics and Philosophy (Ann Arbor: The University of Michigan Press, 1958), p. 119.

32. By saying that the manifold of relativity theory and the causal determinism of classical physics imply "ontological" fatalism, I mean only that these theses concern the specific contents and structure of the universe. Logical determinism implies precisely the same fatalism (which is a thesis about the limits of human actions) as causal determinism and the assumption that the manifold is a reality, but logical determinism is a thesis whose formulation is independent of how the universe is composed or structured. Fatalism follows from logical determinism provided only that some propositions are about human events. The events might be bizarrely lacking in any sort of order or lawful regularity, but this would not be relevant to the fatalistic implication of logical determinism.

33. Problems of Space and Time, ed. with an introduction by J. J. C. Smart (New York: The Macmillan Company, 1964), p. 13. Smart's italics. I explained what Smart means by "the tenseless way of talking" when I introduced tenseless discourse earlier. For Smart's full treatment of tenseless discourse and of its relevance to discussions of the space-time world, see Philosophy and Scientific Realism (London: Routledge and Kegan Paul, 1963), pp. 132-142.

34. Philosophy and Scientific Realism, p. 136.

35. Problems of Space and Time, p. 13.

36. There is no universal agreement on what is the correct interpre-

tation of Aristotle's De Interpretatione, Chapter IX, but a popular view is that Aristotle at least rejects the law of excluded middle as applied to propositions about future events. If this view is correct, then Aristotle surely was among the first to reject logical determinism.

37. If we reject logical determinism as applied to propositions about future events, then we can no longer say we have knowledge of the future now, if by "knowledge" we mean "justified true belief." This implication runs counter to ordinary usage of the word "knowledge," but I will not concern myself with the difficulties, philosophical and linguistic, caused by this incompatibility.

38. (New Haven: Yale University Press, 1967).

39. Ibid., pp. 122-123.

40. Ibid., p. 133.

41. Remember that theoretically we can always manufacture an explanation of ostensible precognition in terms of PK. These alternative explanations must occasionally be farfetched, as when we explain Vanga Dimitrova's prediction of a death by saying she caused it psychokinetically. Despite this, we can never be compelled by sheer logic or evidence to accept precognition.

CHAPTER V

THE EXPLANATION OF PSI PHENOMENA

In this chapter I will discuss a few theories designed to explain primary psi phenomena and will examine the implications of the possible explanation of psi phenomena for the evolution of science and for a limited reconciliation of science and certain religious views. I will begin with a review of some established facts about psi phenomena and a discussion of some general theoretical approaches to explaining psi phenomena which might prove successful. I will then examine a couple of recent proposals by some theoretical physicists for explaining precognition by means of present physical concepts. Next I will examine three theories for explaining psi phenomena each of which would require, it seems to me, at least a minor revolution in the current scientific world-view. I will then look at some recent discussions of the possibly limited scope of scientific explanation and of the need for new ideas about scientific explanation. Following this I will discuss two opposing views about the need for a major revolution in science in order to explain psi phenomena. I will conclude the chapter by returning to the main theme of this dissertation and showing how the scientific

explanation of psi phenomena might afford a reconciliation between science and certain religious views about souls and free will.

I. The Empirical Data Base for Theorizing

Parapsychological studies of primary psi phenomena provide an immense abount of data which form a starting point for explaining primary psi phenomena. In this section I will briefly review the types of primary psi phenomena and discuss a few general theoretical approaches to explaining psi phenomena, some of which might eventually lead to success in explaining the phenomena and some of which apparently will only lead to cul-de-sacs.

A. Telepathy and Clairvoyance

In Chapter One we defined "telepathy" and "clairvoyance," and we discussed some of the psychological regularities apparent in the manifestation of these phenomena. In Chapter Two we discussed some of the physical facts about psi phenomena when we examined the incompatibility of psi phenomena and classical physics. We noted that success at telepathic and clairvoyant tasks is apparently independent of the distance between "sender" and "receiver" and that for this and other reasons a radiation model based on the theories and assumptions of classical physics will not likely be able to explain telepathy and clairvoyance.

If telepathy and clairvoyance are independent of distance, then it will be difficult to explain them by means of any physical theories that have in the past been used to explain the transfer of information across space. A radiation theory is not out of the question; it is

simply not presently plausible. A theory that views human minds as somehow directly connected at a certain level of mind, a theory similar to but more precisely formulated than the speculations of some psychologists and philosophers about a "collective unconscious,"[1] might prove better able to yield an explanation of telepathy and clairvoyance.

B. Precognition

Precognition, as I have defined it, violates the postulate of classical physics that causally linked events should be connected by causal chains which are continuous in space and go forward in time. It is clear, then, that no explanation of precognition based on the postulates of classical physics is possible. It is interesting to note, in this connection, that a classical physicist, were he faced with the task of explaining an ostensible precognition by principles consistent with his view of the world, would try to explain it by appeal to a notion like that of the Laplacean superbeing. The classical physicist, if he could just somehow create a radiation theory for clairvoyance, could say that a precognizer does not really precognize but, rather, clairvoyantly "perceives" the present state of the universe and then <u>infers</u> (another assumption about the psychic's mind is needed here) the future states of the universe and the events that occur in the future. This explanation fails, it seems to me, because of the Principle of Indeterminacy of quantum mechanics. A psychic who apparently precognized a distant future event would have to know <u>precisely</u> the positions and the momenta of all the subatomic "particles" that are going to be in any way causally involved in the production of the event

predicted. The general principle involved here is the same as that applicable to predicting the exact fall of an artillery shell. To predict precisely the square foot of ground upon which the shell will impact, a person must know the precise angle of the cannon and the precise velocity of the shell when the cannon is fired. But according to the Principle of Indeterminacy we cannot know simultaneously the precise positions and momenta of subatomic "particles." So the classical physicist has no hope, given what is now known about elementary "particles," of explaining precognition in a way consistent with his physical principles. Furthermore, no contemporary physicist, on his own principles, could explain precognition with a "clairvoyance-plus-inference" theory.[2]

As I noted in Chapter Two, precognition might be explicable either in terms of backward causation or in terms of higher dimensions from the perspective of which ordinary time is spatialized. We will discuss below theories framed in terms of these alternatives.

C. Psychokinesis

As our discussions of psychokinetic phenomena in Chapters One, Two, and Three have indicated, these phenomena seem to be the result of a biological force, some forms of which (as long-distance healing) might be independent of distance. Now if PK phenomena are manifestations of a hitherto undetected force, it seems possible that scientists will someday find means to study and measure this force. If some forms of the force are independent of distance, scientists would, I think, find it difficult to develop a complete theoretical conceptualization of the force. It is not clear how they would circumvent

this difficulty, but we may suppose that they might be able to.

D. Transmaterializations

The type of transmaterializations in which mediums produce a substance called "ectoplasm" which can condense into solid objects might be explained by an extension of the theory that PK phenomena are produced by a force emanating from a human being. Using the principle of the equivalence of matter and energy, scientists might be able to show that transmaterializations constitute a type of highly controlled transformation of energy into matter.

Using the principle of the equivalence of matter and energy, scientists might also be able to explain apports, objects which pass through solid walls and other material bodies, in violation of present physical theories, without damage either to themselves or to the objects through which they pass. A physical (at least geometrical) model for the movements of apports might be given in terms of spaces of more than three dimensions. Movements within such higher-dimensional geometries can be qualitatively identical to transmaterializations. J. C. Pearce, author of The Crack in the Cosmic Egg,[3] reports that one of his neighbors who was a topologist could show him mathematically how to "remove an egg from an intact shell through mathematical four-space."[4] The movement of the egg from inside its shell to outside its shell without cracking the egg is like the movement of a rock from inside a closed room to outside it without ripping a hole in the wall.

II. Two Theories for Explaining Precognition

Recently some physicists and mathematicians have tried to

explain precognition in terms of present physical concepts. In this section I will examine two such attempts by contemporary scientists to explain precognition.

Harold Puthoff and Russell Targ, physicists at the Stanford Research Institute in Menlo Park, California, have proposed a "model" (a "proto-theory," as they call it) to explain precognition.[5] In presenting their theory, Puthoff and Targ first point out that the irreversibility of causality appears more "factlike" than "lawlike"; therefore, "we should not be shaken to our foundation if experiments are devised that show that sometimes information is found to be transmitted"[6] from the future to the present. Additionally, they note that "in physics, everything that is not forbidden occurs"; since "physics does not forbid the transmission of information from the future to the present,"[7] we should expect information to be transmitted from the future to the present. Then they hypothesize

> that significant events create a perturbation in the space-time in which they occur, and this disturbance propagates forward and, to some small degree, backward in time. Since precognitive phenomena are very rare, this disturbance must die out quite rapidly in the -t direction. The wave traveling in the +t direction is associated with causality as usually experienced.[8]

Since the perturbation in space-time, that is, the precursor wave, dies out quickly in the -t direction, it follows that "the accuracy of the precognitive perception predicted from this model will increase with the 'magnitude' of the event for the perceiver, and it will fall off with increasing temporal distance from the event."[9] The prediction that the accuracy of a precognition decreases with increasing temporal distance from the precognized event enables the model to be tested. Puthoff and Targ desired to use an ESP-teaching

device similar to the Schmidt machine described in Chapter Three to test the model, but at the time of their report (1974) they had not yet found a suitably gifted subject for use in experimentation.

In further discussion of the precursor wave, Puthoff and Targ say that

> when these waves encounter the observer, he will perceive the event. Subjectively, he will believe he is remembering it. He will continue to do so until the packet of waves has passed him, at which point he will subjectively forget the event. The event will then happen, making the observer believe he had seen it all before, which indeed he had. We would therefore argue that the familar déjà vu phenomenon is the most common form of precognition.[10]

Puthoff and Targ's model is a bold attempt to demonstrate the compatibility of precognition and contemporary physics. However, the theory faces several difficulties.[11] First, according to the theory almost all precognitions should occur just seconds, or at most minutes, before the precognized events. But precognitions many years in advance of the events predicted are on record. (Recall the Bulgarian seeress Vanga Dimitrova.) These long-term precognitions are not at all rare, and this is contrary to the model's implication that they should almost never occur and that when they do occur the "magnitude" (to use the term of Puthoff and Targ) of the event should be very great for the perceiver. Second, the model was explicitly created in analogy with the theory of electrodynamic fields, the equations for which permit an advanced potential solution (for electromagnetic waves propagated in the $-t$ direction) as well as a solution for retarded action. It would seem, therefore, that Puthoff and Targ conceive the precursor waves responsible for precognition to be similar to, and perhaps identical with, ordinaty electromagnetic waves. If they do so conceive the precursor

waves, then all the criticism leveled against field-theory explanatory models of ESP are applicable to their theory.[12] Third, Puthoff and Targ say that when the precognizer encounters the precursor wave of an event he will believe that he is remembering it. That is, his precognitive perception will subjectively appear as a remembrance. But if their interpretation of the precognitive experience follows from their theory, then their theory does not accord with fact, for according to most psychical researchers almost all precognitions are experienced (if they are consciously experienced at all) without the aura of "remembrance" encountered in déjà vu experiences.

A second theory for explaining precognition was created in the 1960's by the late Adrian Dobbs, highly regarded as a mathematician.[13] Dobbs viewed his proposal as a testable quantum mechanical theory by which precognition and other psi phenomena could be explained. His theory assumes a pentadic space-time, the first four dimensions being ordinary space-time, the fifth dimension being an additional dimension for imaginary time and energy. ("Imaginary" is used here in the mathematician's sense, not in the story writer's sense.) Dobbs introduces this fifth dimension in order to use the notion of "virtual particles" which is commonplace in contemporary physics. As Dobbs points out,

> according to current orthodox quantum physics every material particle of mathematically real mass can be surrounded by a gas of particles of imaginary mass, the so-called "virtual" particles, carrying mathematically imaginary energy and momenta; and these "virtual" factors can play an essential part in the ordinary physical processes.[14]

Dobbs says that his

> quantum mechanical theory of complex time and energy provides a possible physical causal mechanism for general ESP. For this theory allows <u>physically real</u> processes involving particles of <u>mathematically imaginary</u> mass to occur reversibly, and without

> frictional loss of energy across space. . . . The physical basis for ESP would then consist in the interactions between the ordinary particles of mathematically real rest mass (such as the molecular microconstituents) of a human brain and a gas of particles of mathematically imaginary mass, . . .[15]

He explains precognition by supposing that the objective probabilities of the outcomes of microphysical events are ordered in the fifth dimension, and that certain of these probabilities give rise to "precasts" of events. "Such data are what a person is directly and non-inferentially aware of when ostensible precognition occurs."[16] In other words, Dobbs proposes that the virtual particles in the fifth (hypothetical) dimension interact with the brains of precognizers so that the precognizers are aware of the probable future. It is as though a very likely future state of affairs is presented to the mind of the precognizer by means of the presently existing precasts in the fifth dimension. That the "future events" of which they are aware are only probable is due, presumably, to the indeterministic behavior of subatomic "particles" which we discussed above. Apparently, what makes a psychic's vision of the future sometimes wrong is that the future is not fully determined and the psychic sees only a probable future state of affairs.

It is impossible for me to say any more about the details of Dobbs' theory, for a complete understanding of his theory requires a knowledge of quantum mechanics that I do not possess. Despite this, I think enough has been said to give a general idea of how Dobbs explains precognition.

Dobbs claims that his theory is testable; it has not yet, however, been subjected to experimental test. Arthur Koestler, the well-known science popularizer, believes that tests of the theory would

yield negative results.[17] Although I am not competent to pass judgment on Dobbs' use of quantum mechanics, I should like to point out the following apparent weakness of his theory. It seems that the indeterminism of subatomic events upon which Dobbs builds his theory pertains to very short periods of time. Therefore, the precasts by means of which a person precognizes the future could be of events certainly no more than a few seconds in the future. So precognition of events weeks or months in the future could not be explained by Dobbs' theory. If the theory could be modified to circumvent this difficulty, then it would have an advantage over explanations of precognition that are based on slightly suspect postulates about the reversal of time or causality, for Dobbs' theory requires extraordinary "perception" only of present factors (the precasts).

A second difficulty is that the theory does not explain "precognition" as I have defined it, but rather gives us a neo-Laplacean explanation of precognition. It is neo-Laplacean because it requires of the precognizer "perception" of present factors only and not of future events, just as Laplace's superbeing had to "perceive" only the present state of the universe, from which he inferred the future states. And it is neo-Laplacean in that it allows only probabilistic predictions. As for Dobbs' theory not explaining "precognition" as I have defined it, this may be an inadequacy of my definition rather than a weakness in Dobbs' theory. If all ostensible precognitions could be explained by Dobbs' theory or a similar neo-Laplacean theory, I would be quite willing to agree that "precognition" as I have defined it does not occur.

III. A Few More Theories

The two theories just discussed are results of attempts to explain precognition within the context of present physical theory. Both of them went slightly beyond what are usually considered the proper bounds of physical speculation, Puthoff and Targ making use of the concept of backward causation and Dobbs postulating the actual existence of virtual particles in a fifth dimension.[18] The theories we are now going to discuss are the results of slightly bolder speculations about the structure and content of the universe. We earlier discussed two of these theories, those of J. R. Smythies and Elmer and Alyce Green, treating them as theories of the soul. We will now show how they can also explain psi phenomena.

We begin with a theory developed by some Russian parapsychologists. The Russians have not themselves published details of their theory in the Western press, so far as I know, but it has been studied and commented upon by Milan Ryzl, a Czechoslovakian parapsychologist who emigrated to America in 1968. Ryzl says that the Russian parapsychologists have postulated that paranormal information is transmitted by a psychical energy that propagates through what they call a "psi-field." The Russians conceive this psi-field as a new physical field. According to Ryzl,

> they usually imagine this field in a way analogous to our idea of the electromagnetic field. We conceive of the electromagnetic field as composed of two vectors. Similarly, the hypothetical psi-field is conceived as a multi-dimensional field, composed of electromagnetic field as one component, and psi-vector as another component. Russian parapsychologists infer that signals traveling in the psi-field can produce also electromagnetic changes on the spot of incidence (and induce corresponding electric changes in the percipient's brain) by a process that is analogous to electromagnetic induction.[19]

It is difficult to evaluate this theory without more information about it, but from Ryzl's description the theory seem reasonable. The Russian theorists seem to have gone one step further than Maxwell, who conceived the electromagnetic field (though on the basis of speculations of experimentalists like Faraday) and described it mathematically. They say that an electromagetic field can be just a part of a more basic field, the psi-field. Perhaps the transmission of information during telepathy and clairvoyance occurs through the psi-field. The electromagnetic changes in a brain or object could produce, after being transmitted in the psi-field, appropriate electromagnetic changes in a percipient, these changes corresponding to his ESP. The present indetectability of the psi-field could account for the failure of physicists to date to explain how information is recieved telepathically or clairvoyantly.

In Chapter Three we examined the Greens' field-of-mind theory of the soul. They say that individual minds exist at more than just the physical level of the brain, that they exist at higher levels which are parts of a basic mind-field. The mind-field is in four-dimensional space-time, but it is so "subtle" that it has not yet been detected by scientific instruments.

Although the Greens' field-of-mind theory has not yet been given precise mathematical expression and physical conceptualization, and so is not a full-fledged physical theory, I think the general lines along which the theory, if developed, might explain some psi phenomena are clear. PK, according to the Greens, could be explained as a type of (unconscious) volition which "handles energy directly."[20] Since the higher levels of the field-of-mind are characterized as existing at

the unconscious level of mind, those psychokinetic occurrences, such as poltergeists, that seem to be results of the action of an intelligent part of the mind that is not conscious would be explicable. When such PK phenomena occur, a part of a person's mind not present to consciousness might be "handling energies directly." The Greens say that the minds of people unite at the transpersonal level to form a field in analogy with the earth's gravitational field. Possibly this "union of minds" could be that by which the transfer of information from one conscious mind to another, as in telepathy, could be explained. Perhaps other developments of the theory could explain clairvoyance and precognition, though it is not clear how the theory could explain precognition.

Let us next consider a theory that does offer a detailed explanation of precognition. We introduced J. R. Smythies' theory of the soul in Chapter Three. We pointed out that his theory is a non-Cartesian dualism which explicitly postulates the reality of dimensions that are mathematically higher than the four dimensions of space-time. Souls exist in the higher dimensions and can, presumably, continue to exist even after the death of their "associated" physical bodies in four-dimensional space-time. Smythies' model explains ESP with relative ease. He says that the communication channel linking the brain and mind may normally be "focused" on the brain but that it may also have a "penumbra" so that the mind may be linked occasionally with objects other than the brain. Clairvoyance would occur when information about those other objects is transmitted by the communication channel to the mind. Telepathy would occur when the other object is another brain. Psychokinesis would occur when influences are transmitted from the mind

to objects in the penumbra.

To explain precognition, Smythies must modify his original model slightly. In the original version Smythies postulated that minds exist in a spatial dimension outside the three-dimensional physical world. Minds and bodies share the same temporal dimension. To explain precognition Smythies must assume a second temporal dimension for minds. The original temporal dimension is treated as part of the four-dimensional space-time manifold, and the manifold time might be called the physical temporal dimension. The new temporal dimension is mental, a time for minds, a time distinct from the physical temporal dimension but parallel to it in a sense Smythies does not clarify.

The explanation of precognition is as follows: Mental space moves with respect to four-dimensional space-time, the movement occurring in the second temporal dimension. Since objects in the four-dimensional world are, from the viewpoint of an observer in the second temporal dimension, "laid out" in the future and the past, a mind outside the four-dimensional world could, in principle, see future and past events. Smythies assumes that the communication channel linking minds and brains exhibits a penumbra effect so that the mind can get information about the future (or past) events as well as present events. The penumbra effect could account for precognition, and postcognition as well.[21]

All the theories presented in this section have the same shortcomings: they lack mathematical expression and they do not clearly imply any testable consequences. They are not, therefore, fully-developed scientific theories. But their authors have not offered

them as such. These "theories" are only attempts to explain psi phenomena by "stretching" some of our present physical concepts. No proper physical concepts corresponding to "psi-field," the "field-of-mind," or "minds in higher dimension" have yet been created. If such concepts ever are created and used to explain psi phenomena, I think it quite likely that physicists would have to make some significant adjustments in their current world-view. It is possible, of course, that the adjustments might even result in a scientific revolution of the magnitude of the Newtonian revolution or the quantum-mechanical revolution.

IV. New Ideas About Scientific Explanation

Because parapsychologists have been trying without success for decades to assimilate psi phenomena to the current scientific world-view, many thinkers have raised the question whether psi phenomena are explicable scientifically. In this section I will discuss the ideas of some writers who have proposed new ways to understand psi phenomena.

Ken Shewmaker, a psychiatrist, and Carlton Berenda, a philosopher of science, suggest that the problem of making sense of psi phenomena may be partially solved if we examine anew the nature of psi phenomena and also the scope of the scientific enterprise.[22] First of all, they agree that perhaps psi phenomena will someday be incorporated within the expanded scope of current scientific thought. But they observe that since this has not yet occurred, it is well to consider the possibility that the inexplicability of psi phenomena is due to the nature of psi phenomena vis-à-vis the nature of science. They say, first, that it is important to recognize the uniqueness of each event.

We are able to create science only because we are able to group events into classes. Science collects events into abstract classes and looks for regularities among them. Now clearly, psi phenomena are events, and as such each psi event is unique. Could it be, ask Shewmaker and Berenda, that the total set of abstract classes used by science simply does not, or perhaps cannot, capture (and thereby explain) the total set of events? In the words of Shewmaker and Berenda:

> Inasmuch as we are bound to the classificatory schemes and abstractions indigenous to our thought forms, we could expect that there would always appear unusual, apparently inexplicable events. That there are these inexplicable events may simply be an artifact of our imposing abstract classes upon the world we experience. This is not to imply that we simply do not have the correct abstractions but that we attempt to explain the world with abstractions at all.
>
> Viewed from this perspective, psi is no longer some mysterious something we have been deluded into seeking. Psi, from this point of view, is the persistent remainder left over from our division of the world into abstract classes.[23]

Shewmaker and Berenda are persistent enough in trying to understand psi phenomena to ask what would constitute the scientific treatment of psi phenomena if those phenomena are the "persistent remainder" outside science. They answer that we can try "to describe as best we can the ways we experience these unusual events."[24] There would be needed a "science of the unique." Such a science would require "a nondiscursive symbolism, a presentational language, . . . a language of the unique."[25] This language might be similar to the "dream language" we experience nightly in which emotions and ideas are expressed as sensory experiences. The "scientists of the unique" might try to gain a "presentational understanding" of both the psi event and the person experiencing it by studying him in depth with the tools of the clinical psychologist as soon as he has his experience. And what kind of under-

standing would be gained by this sort of science? It seems it would not be the understanding gained by ratiocination but an understanding somewhat like intuitive knowing.

I think that Shewmaker and Berenda have not challenged the nature of scientific explanation; rather, they have suggested that some types of events simply cannot be brought within the scope of scientific explanation. The "science of the unique" is not science as it is presently conceived. Some sciences, such as history, are concerned with unique events, but always within the context of abstract concepts and explanatory principles. A science of the unique that tries to avoid abstract classificatory schemes altogether would not be concerned with explaining psi phenomena, as Shewmaker and Berenda have correctly pointed out, but only with trying to gain an intuitive appreciation of these unique events. Perhaps this is the only type of understanding we will ever be able to have of psi phenomena. But I think we should hope for a complete scientific understanding of them in the sense of explaining them in terms of general laws and abstract classificatory schemes. To accept less would be to admit a defeat of the scientific enterprise.

Brendan O'Regan, a physicist, suggests some reasons different from those of Shewmaker and Berenda for the failure of science to explain psi phenomena to date.[26] He believes that reductionism, the thesis that all events are in principle capable of being explained eventually by physical laws, is "science's ideological straitjacket."[27] He suggests that biological systems are not reducible systems because their behavior <u>possibly</u> cannot be predicted by a knowledge only of their parts and structure. Biological systems, in short, perhaps

produce emergent properties because of their extreme complexity. These properties might be explicable by scientific laws, but perhaps not by physical laws. O'Regan suggests that the development of uniquely biological laws might call for a new mathematics designed to explain the "very complex" and to deal with "discontinuity and structure."[28]

In developing this comment about mathematics, O'Regan says that the explanation of psi phenomena will require the development of new ideas of order and measurement. He turns here to a consideration of David Bohm's distinction of "implicate" and "explicate" order.[29] Explicate order is that by which things that are temporally and spatially isolable are arranged. Our visual sense perception is based on explicate order, for it divides items of the perceptual field into isolable objects and structures them spatially. Implicate order is that by which "a total order is contained, in some implicit sense, in each region of space and time."[30] The paradigm for this type of order is the hologram, in which features of the complete structure can be seen in very small pieces of the whole. O'Regan's interesting suggestion is that perhaps psi phenomena can be understood if somehow the notion of implicate order can be applied to the whole of space and time.

If we blend the ideas of Shewmaker and Berenda with those of O'Regan, we obtain this thought: Perhaps the classification schemes of science that rule psi phenomena out of court include such theses as reductionism and its concomitant emphasis on explicate order and mathematics for the relatively simple. If those schemes can be modified along the lines suggested by O'Regan, then perhaps science can widen its scope to include psi phenomena. Perhaps the phenomena that might

still lie outside the explanatory schema of science will not be so seemingly important a persistent remainder as psi pheonomena.

V. The Coming Revolution in Science

At the end of Chapter Two I said that the explanation of psi phenomena will require either a minor or a major revolution in the scientific world-view. We have now examined enough of the parapsychological facts and the theories that try to explain them to return to the question of whether the revolution required in explaining psi phenomena will be minor or major. To answer this question we need some criterion for measuring the magnitude of scientific revolutions. No such criterion has ever been articulated, no doubt because the concepts of world-view and scientific revolution are too vague for precise characterization and because we are dealing with a continuum when we talk about the magnitude of scientific revolutions rather than with two distinct classes labeled "minor revolutions" and "major revolutions." Nevertheless, we do have a rough guide for classifying revolutions as minor or major: it lies in the fact that the minor paradigm changes associated with minor revolutions concern either theories of restricted scope or relatively small classes of objects and that major paradigm changes associated with major revolutions concern alterations of the most basic scientific concepts.

What are these most basic concepts? For the Newtonian, Einteinian, and quantum-mechanical revolutions they were the concepts of space, time, causality, and matter. Should we expect further significant developments of these concepts before psi phenomena are explained? Surely the discussions of the theories of the Greens,

Smythies and others suggest that developments of these concepts may be necessary in order to explain psi phenomena. As the Greens point out, we may need to expand our concept of matter so that it includes mind and spirit. As Smythies suggests, we may need new ideas of space and time, perhaps postulation of the reality of hyperspace and additional temporal dimensions.

If I may borrow a phrase from the psychiatrist and psychical researcher Lawrence LeShan, the present state of theorizing in parapsychology may be described as "an unmitigated disaster area."[31] The lack of a paradigm for parapsychology led Shewmaker, Berenda and O'Regan to raise questions about the scope and methodology of science. These men hoped that by raising these questions they would find some way to understand psi phenomena. As we review the many theories for psi phenomena, each a failure as presently formulated, and then find some writers questioning the capacity of science, as presently conceived, to explain psi phenomena, it seems obvious that psychical research is in a pre-revolutionary state, a pre-paradigmatic stage of development. As Thomas Kuhn, a historian of science, has pointed out, such crisis states in the development of a science often exhibit a "proliferation of competing theories."[32] Eventually a theory is created to explain the formerly anomalous data. If a theory strikes deeply enough at the basic concepts of a science, then a major scientific revolution occurs when the theory is accepted.

The problem we have is to decide whether the theory that will explain psi phenomena will strike deeply at the basic concepts of physics or will only restructure the theoretical framework of the cur-

rent scientific world-view so that psi phenomena fall within its scope. The problem is made more difficult by the fact that it is not clear whether the present paradigm of physics includes concepts of space and time adequate for explaining psi phenoema. Perhaps it does.

I have already quoted, in Chapter Two, Feinberg's comment to the effect that we should be wary of saying that a certain sort of phenomena cannot be explained by contemporary physics, for contemporary physics is a very rich field and we may "live to eat our words" should we underestimate its resources.

Against Feinberg, I offer the observations of Dr. C. T. K. Chari, an Indian scientist as world-renowned as Feinberg as a theoretical physicist but who also has studied psi phenomena for many years. (Feinberg has not.) Dr. Chari says, "I am persuaded that most of the proposed models in parapsychology carry little promise. . . . Parapsychology, in my view, requires more than a reconstruction of quantum mechanics. It calls for a major paradigm shift in our notions of probability and information, especially in biology."[33] Dr. Chari says that he uses "paradigm shifts" in T. S. Kuhn's sense, according to which a major paradigm shift involves a major scientific revolution.[34] It appears, then, that Dr. Chari has no fear of having to "eat his words" when psi phenomena are finally explained, for he is fairly certain that the explanation of psi phenomena will require a conceptual revolution not only in physics, but in other branches of science as well.

Not being a scientist, I do not care to take sides with either Feinberg or Chari. I have cited their remarks only as illustrations of opposed views on the question of how psi phenomena will be explained.

The future will show whose view is correct.

VI. The Reconciliation of Science and Religion

"To reconcile" means "to bring back to friendship after estrangement: to show to be consistent or congruous: harmonize." One of the stated purposes--the primary purpose--of this dissertation is to show that the explanation of psi phenomena might be the means by which a reconciliation between science and religion is effected. The estrangement or lack of harmony between science and religion which my stated purpose presupposes is, specifically, the incompatibility between the theroretical framework of the current scientific world-view and the particular religious beliefs (1) that human beings have free will and (2) that they have souls that survive the deaths of their bodies. In this section I will expand upon my comments near the end of Chapter Two about this reconciliation, showing precisely how it might come about.

The spirit of science is monistic. Any theoretical entity of science is "physical" by definition. In contemporary science "physical" obviously does not mean "material" if by "material" is meant "matter of the traditionally tangible types"--lead, water, air, or the solid little atoms of mechanistic materialism. Electromagnetic fields are as intangible as one can imagine, but they are physical nevertheless. They are theoretical entities that are required in understanding electric and magnetic phenomena. Whether a particular theoretical entity is to be accepted by scientists depends on the need for such an entity in explaining phenomena and on the compatibility of the postulation of the entity with the current theoretical framework of

science, even if this requires elimination of formerly accepted theories.

The monistic spirit of science causes it to oppose ontological dualism. Because the souls of men have more often than not been conceived by thinkers as spiritual entities, as opposed to physical entities, modern scientists have generally denied the existence of souls. Similarly, all phenomena that had any taint of the supernatural about them, i.e., any suggestion that they were associated with or produced by spiritual entities like devils or evil spirits or angels, have been spurned by natural scientists. Psi phenomena were at one time regarded as supernatural, but now many scientists accept them as natural phenomena. It seems to me that if souls can be brought within the sphere of the natural by theoretical and experimental advances, just as psi phenomena have been brought within it, then scientists will regard them as natural entities.

What is needed for the scientific assimilation of souls is a proper theoretical characterization of souls. I believe that theories such as those of Smythies and the Greens, discussed in Chapter Three, are a step in the right direction. Provided that the study of survival phenomena shows a theoretical need for postulation of the existence of souls that survive physical death, scientists might modify the theoretical structure of the scientific world-view so that a theory of the soul is compatible with it. I think it very likely that any theory of the soul accepted by scientists will treat the soul either as a qualitatively new type of entity, or a most unusual sort of field phenomenon, or as a type of entity existing in a dimension or dimensions outside ("higher than") the four dimensions of space and time.

Any scientifically acceptable theory of the soul will treat it as a "physical" entity. Does this imply that the traditional conception of the soul as a spiritual entity will be "reduced" to a scientific conception? And if so, does this not imply that the putative reconciliation between science and religion is no reconciliation at all? I think the answer to the first question is "yes" and the answer to the second question is a qualified "no." Scientists cannot but conceive souls as physical, if they postulate them. So the scientific acceptance of souls, if it takes place, will be a sort of ontological reduction of spiritual souls to physical souls. This would not prevent a reconciliation between scientists and adherents of certain religious world-views on the question of the soul's existence unless the religious adherents refused to accept the scientific characterization of souls. I see no reason, however, for religious adherents not to accept it, provided the soul as scientifically described keeps the properties religious adherents consider most important. These properties are, I think, the soul's being the seat of man's distinctively human mental traits (consciousness, intellect, appreciation of moral values, etc.) and the soul's immortality. Now this latter property is not one that scientists will ever ascribe to a physical entity. The most they will ever say on the question of how long a soul survives physical death is that, on the basis of the survival research of parapsychologists, souls survive for an indefinite period of time after the deaths of the bodies with which they were associated. Religious adherents who do not find this satisfactory will rightly insist that the scientific conceptualization of the soul affords no reconciliation between science and their par-

ticular religious beliefs.

And what about free will? If scientists "reduce" souls to physical entities, will they not thereby eliminate free will (as I defined it)? I believe that our discussion of quantum theory in Chapter Four gave the correct answer to this question. Provided there remains always an element of unpredictability in the behavior of souls, no matter how well they are understood scientifically, then it will always be possible to say that the unpredictable behavior of souls is due to their exercise of free will. Agreed, most of the exercise of cognitive functions of the soul might eventually become predictable by scientists, just as much of human behavior already is predictable when enough information is at hand. Despite this, as long as the decisions of humans based on careful deliberation remain unpredictable, there remain grounds for adhering to the libertarian conception of free will.

Our examination of survival phenomena showed that there is justification for believing that souls might exist and might survive death. Other types of scientific data make the opposing view--that souls might not exist and that death marks the end of our mental lives--just as justified. I think that a reasonable person will not adhere to either belief too firmly if he considers only the scientific evidence. Our discussion of precognition showed that we need not fear any fatalistic conclusions implicit in the occurrence of this type of psi phenomena. Certainly what few precognitions do occur need not make us fear we do not have the power to decide between alternative courses of action when faced with the need to make a decision. So I believe that our study of precognition, though it does not imply that the libertarian

view of free will is correct, shows that libertarian free will is compatible with the precognition that does occur. Furthermore, although the libertarian view of free will is not identical with all religious views of freedom, those adherents of religious world views who accept the libertarian view can rest assured that precognition is not imcompatible with free will.

In the short concluding chapter which follows, I will summarize what I have accomplished in this dissertation.

ENDNOTES TO CHAPTER V

1. I allude here to theories such as Carl Jung's theory of the "collective unconscious" and transcendentalists' (e.g., Emerson's) conception of the "oversoul."

2. I might be wrong about the impossibility of a psychic clairvoyantly "perceiving" (the "perception" would obviously have to be by his subconscious mind) the subatomic state of a physical system. Perhaps David Bohm is right in his speculations about a causal subquantum mechanical level of reality.

3. (New York: Pocket Books, 1973).

4. Ibid., p. 9.

5. The theory is put forward in "Psychic Research and Modern Physics," in John White, op. cit., pp. 524-542.

6. Ibid., p. 526.

7. Ibid. Puthoff and Targ's italics.

8. Ibid.

9. Ibid., p. 527.

10. Ibid., p. 529.

11. Perhaps with suitable modification the theory can overcome these difficulties. If not, then perhaps another theory using the notion of backward causation can be developed.

12. These criticisms were presented in Chapter Two. The failure of Puthoff and Targ to take account of these criticisms is perhaps due to their being newcomers to the study of parapsychology.

13. "The Feasibility of a Physical Theory of ESP," in Science and ESP,

ed. J. R. Smythies (London: Routledge & Kegan Paul, 1967), pp. 225-254.

14. Ibid., p. 247.

15. Ibid., pp. 251-252. Dobbs' italics.

16. Ibid., p. 250.

17. The Roots of Coincidence (New York: Vintage Books, 1973), p. 78. I mention Koestler's opinion only because he is a physicist competent to judge Dobbs' theory. It should be obvious that I am not committing an argumentum ad verecundiam. I am not saying that Dobbs' theory will not explain precognition; I am only saying that some physicists say it probably will not.

18. Physicists have talked about backward causation and time reversals and higher dimensions before, so it is obvious that the work of Puthoff, Targ, and Dobbs would not be considered simply mad by physicists. Nevertheless, physicists do not appeal to concepts like these routinely. Possibly a notable exception is the use of Feynman diagrams in quantum mechanics.

19. Parapsychology: A Scientific Approach (New York: Hawthorn Books, Inc., 1970), p. 157.

20. Elmer and Alyce Green, op. cit.

21. It is difficult to understand Smythies' theory without the aid of diagrams. The reader who would like a better understanding of the theory should consult Smythies' presentation of the theory, complete with diagrams, in Science and ESP, ed. J. R. Smythies (London: Routledge & Kegan Paul, 1967), pp. 1-14.

22. Shewmaker, Kenneth L., and Berenda, Carlton W., "Science and the Problem of Psi," Philosophy of Science, XXIX (1962), 195-203.

23. Ibid., p. 200. Shewmaker and Berenda's italics.

24. Ibid. Shewmaker and Berenda's italics.

25. Ibid. In speaking of a "science of the unique," Shewmaker and Berenda obviously cannot be using the word "science" in the sense in which they characterized science earlier as an enterprise which collects events into abstract classes. It seems that they are here talking of an enterprise quite different from traditional science. The enterprise is similar to traditional science in that it is an attempt to understand natural events. See the discussion below in the text.

26. "The Emergence of Paraphysics: Theoretical Foundations," in John White, op. cit., pp. 448-467.

27. Ibid., p. 457.

28. Ibid., p. 459.

29. Bohm presents his ideas in "Quantum Theory as an Indication of a New Order in Physics, Part A," Foundations of Physics, I, no. 4 (1970), and "Quantum Theory as an Indication of a New Order in Physics, Part B," ibid., III, no. 2 (1973).

30. Bohm, "Quantum Theory as an Indication of a New Order in Physics, Part B," quoted by O'Regan, op. cit., p. 461.

31. The Medium, the Mystic, and the Physicist (New York: Ballantine Books, 1975), p. xi.

32. The Structure of Scientific Revolutions, Second edition, enlarged (Chicago: The University of Chicago, 1970), p. 74.

33. Quantum Physics and Parapsychology, ed. Laura Oteri (New York: Parapsychology Foundation, Inc., 1975), pp. 282-283.

34. See Kuhn, The Structure of Scientific Revolutions.

CHAPTER VI

CONCLUSION

I will now recapitulate the line of argument in this dissertation and summarize the conclusions that I have reached by my investigation of some of the philosophical implications of psi phenomena.

My major thesis in this dissertation is that psi phenomena provide a means by which adherents of the current scientific world-view and adherents of certain religious world-views can reach agreement about the existence of souls, their nature, and their survival of physical death, and about the free will of human beings. To support this thesis I have argued for two subsidiary theses. The first subsidiary thesis is that survival phenomena offer some support to the belief that human beings have souls that may survive their deaths. The second subsidiary thesis is that human beings may have free will despite the occurrence of precognition. An additional concern of mine in this dissertation is the question of how significant a modification in the current scientific world-view will be required in order to explain psi phenomena. To support my thesis, I proceeded as follows.

In Chapter One I simply presented several examples of psi

phenomena and showed how they can be classified and how they can be distinguished from other occult phenomena.

In Chapter Two I discussed world-views. I tried to show how the scientific and religious attitudes toward the world constitute belief systems that can be opposed on certain issues and that also can be reconciled on those issues if appropriate adjustments are made in the belief systems. So I explained the concept of a world-view and discussed the two-tiered structure of world-views--their having a set of commonsense beliefs and a set of theoretical beliefs. I showed how the world-view of classical physics is incompatible with the occurrence of psi phenomena and with religious beliefs about souls and free will. I discussed the free-will problem at this point, and said that I would try to show how the concept of libertarian free will is compatible with precognition and contemporary science. I showed that contemporary science might be compatible both with the occurrence of psi phenomena and with religious doctrines of survival and free will. I reasoned that the reconciliation between adherents of scientific and religious world-views would require that the religious adherents accept a physicalistic conception of the soul. I also said that this might be acceptable to religious believers if the soul were conceived by theoretical physicists to be capable of survival and to exhibit the mental properties which religious believers think most essential for persons.

In Chapter Three I evaluated the survival phenomena as evidence for the survival hypothesis in order to demonstrate the correctness of my first subsidiary thesis. Before turning to the survival evidence,

I argued that the survival thesis is intelligible. In this argumentation I tried to show that we can give sense to the claim that souls, as immaterial entities, can survive the deaths of the bodies they are associated with for a lifetime. I argued that a person could confirm his own survival subjectively. Also I argued that the problems of individuation and identification of disembodied immaterial souls might be overcome by saying that such souls can be individuated referentially and can be identified by a mental criterion, provided "criterion" is not taken in a needlessly strict sense. I then discussed the theories of the soul recently offered by J. R. Smythies and by Elmer and Alyce Green. According to Smythies' non-Cartesian dualism, souls may be entities that exist outside the four-dimensional space-time continuum. According to the Greens' field-of-mind theory, souls may be entities that exist in three-dimensional space but that in some sense are more basic (and long-lasting) than the brains with which they are associated. I next proceeded to an evaluation of survival phenomena. I showed to what extent the various types of survival phenomena can satisfy a personal-identity criterion, and I contrasted the survival hypothesis with other explanations of survival phenomena in order to judge which explanations are the most plausible. I concluded that the various types of survival phenomena constitute collectively fair-to-good evidence for the truth of the survival thesis. And from this conclusion and the earlier discussion of possible scientific theories of the soul I concluded that survival phenomena do support my subsidiary thesis that scientists and adherents of certain religious world-views might someday agree about the nature of the soul and its survival of death.

In Chapter Four I argued--rather tortuously, I fear--for my second subsidiary thesis--that human beings might have free will despite the occurrence of precognition. I began by giving what amounts to an operational definition of "precognition." Then I explained how we may view precognition as knowledge. I pointed out that the important philosophical questions about precognition turn on our regarding precognition as giving knowledge <u>now</u> about future events. In order to bring out the fatalistic implications of precognition most forcefully, I introduced the notion of the "perfect precognizer." I then discussed in detail the logical-determinism proof of fatalism and the causal-determinism proof of fatalism. I discussed in some detail the knowledge of the perfect precognizer and contrasted it with that of Laplace's superbeing, and then I showed that classical physics is incompatible with precognition. I then turned to twentieth-century physics and showed that the libertarian concept of free will is compatible with an indeterministic interpretation of the behavior of subatomic "particles." I then suggested that we can view souls as agents who intrude into the ordinary world when they exercise free will. Souls would be viewed as "outside" the physical world (either literally outside, in the mathematical sense, of the four-dimensional space-time continuum or outside the physical world in the sense that they exist in a "dimension" of the three-dimensional world which is "higher than" that of ordinary physical reality). Being outside the physical world, their actions would not be completely determined by states of the physical universe that immediately precede those actions. Hence, their actions could be the result of free will, and these free actions would be, with respect to

our knowledge of the physical world, unpredictable. I next showed that we must reject both a realist interpretation of the four-dimensional space-time manifold and, most importantly, the doctrine of logical determinism, in order to secure the plausibility of libertarian free will both on logical and scientific grounds. The upshot of my discussions of the proofs of fatalism and contemporary physics was that contemporary physics is compatible with libertarian free will and that we can avoid the conclusions of the two proofs of fatalism by rejecting, as we are justified in doing, their premises. I concluded the chapter by showing that precognition is compatible with free will, even if a perfect precognizer exists. I argued that if propositions about future events have indeterminate truth-values, then, for future human actions that are deliberately performed by agents, the persons who exercise free will are responsible for bringing about the events and for making propositions about future events either true or false. The responsibility and efficacy of agents obtain even if a perfect precognizer predicts accurately all future human actions.

In Chapter Five I discussed some theories for explaining psi phenomena. I observed that none of these theories adequately explains psi phenomena. I concluded that we cannot know at present how great a revolution in science will be required to explain psi phenomena, though we can be sure that a significant adjustment in the theoretical framework of science is very likely when psi phenomena are explained.

My conclusion is that the occurrence of psi phenomena does afford us grounds for believing that the new scientific world-view created when scientists finally explain psi phenomena might be one in which

traditional religious beliefs about souls, their survival, and human free will find a place. Such a world-view will be one by means of which a reconciliation is achieved between scientists and holders of certain religious beliefs. The reconciliation will require that a survivalistic explanation of at least some survival phenomena be found far more scientifically plausible than any counterexplanations of these phenomena in terms of super-ESP or hallucinations. It will require that the behavior of subatomic "particles" be viewed indeterministically, that the four-dimensional space-time manifold be viewed as a representation and not a reality, that the thesis of logical determinism be rejected, and that time be viewed as real and efficacious. It will also require that the behavior of souls never be fully predictable and that religious believers who desire the reconciliation agree to conceive souls as physical entities (but not "physical" in the same sense as, say, human bodies).

In this dissertation I have treated only a few of the philosophical implications of the occurrence of psi phenomena. I have tried to treat these implications systematically by linking them to the common theme of a potential reconciliation between science and religion. The field of parapsychology is a fascinating new science, and its subject matter bears upon scientific and philosophical questions at many more points than those few I have discussed. I cannot but agree with R. C. Johnson, whom I quoted in the preface, when he ventures the opinion that in the next few decades the study of psi phenomena will alter our "whole climate of thought." My discussion of the reconciliation of science and traditional religious beliefs about survival and free

will shows only one way in which the study of psi phenomena might alter our view of the world in the future.

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