Leonard Zusne
Warren H. Jones

Anomalistic Psychology

A Study of Magical Thinking

SECOND EDITION

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Preface

A decade ago we prepared the first edition of the present text because we felt there was a need to present to our students a systematic and scientifically respectable account of anomalistic psychological phenomena—those behavioral and experiential phenomena that seem to violate natural laws. Except for an occasional discussion of parapsychology, the introductory texts offered little, if anything, along these lines, and other textbooks were likewise silent on these matters. Yet, as every psychology instructor who has taught the introductory course knows, it is precisely these phenomena that guarantee the undivided attention of the class.

The term *anomalistic psychology* was first used in the 1980 edition of this book and in the title of a symposium held at the 1980 meeting of the American Psychological Association. (A second one was held in 1984.) We thought of anomalistic psychology as an aspect of general psychology that was coextensive with it but merited special attention (and a special name). Our text was accordingly organized in a manner similar to that of an introductory psychology text, each chapter covering one of the ways in which humans learn about the world, perceive it, think about it, and otherwise interact with it.

Our view of the place of anomalistic psychology within the field of psychology remains unchanged, and in this second edition we have not only retained the original general outline but have emphasized it: For instance, the material that appeared in the first edition under the heading "Parapsychology" now appears in the chapter on "Information Processing." All chapters have been updated. The major change, however, has been the inclusion of a chapter on magical thinking and the consistent and explicit reference to it of the entire gamut of relevant behaviors, experiences, and phenomena. Magical thinking

is the central concept of this book. It provides an orientation that ties, we hope, the many separate parts of the field of anomalistic psychology into a meaningful whole.

Leonard Zusne
Warren H. Jones

1

Introduction to Anomalistic Psychology

TERMINOLOGY

Our ancestors of not so many centuries ago regarded any psychological anomaly with awe, attributing its origins to supernatural agencies. Among such anomalies were not only precognitive dreams, cases of miraculous healing, sleepwalking, and automatic behaviors, but all cases of severe psychopathology. The psychotic individual was said to be possessed by an evil spirit, an explanation that was also applied to the neurotic individual suffering from hysteria. Eventually, demons and spirits were given up as explanations of psychopathology. Behavior that in some way deviated from the statistical norm, or what most people regarded as normal behavior, was designated as *abnormal* and treatable by physical and psychological means.

There remained the other phenomena that were also deviations from the norm, but these were abnormal in a different sense. They were not unusual because they did not occur very frequently, the way the absence of pain sensitivity or color blindness in one eye only are unusual (anomalous) phenomena because they are rare. These phenomena violated certain "basic limiting principles" (Broad, 1953), which are general principles that describe how nature works. They are not laws of nature but, like the principles of logical reasoning, "are commonly accepted either as self-evident or as established by overwhelming and uniformly favorable empirical evidence" (Broad, 1953, p. 9), at least as far as most everyday events are concerned. Broad divided the basic limiting principles into four categories. One concerns general principles

of causation (e.g., an effect cannot precede its cause), another the dependence of mind upon brain (e.g., no mental event is possible without a corresponding brain event), and the remaining two deal with limitations, one with limitations on the action of mind on matter (e.g., objects cannot be moved simply by willing them to move or be transformed into other objects in the same way), the other with limitations on ways of acquiring knowledge (e.g., it is impossible to know about objects and events, the mental activities of another person, or events that have not yet taken place, except by means of direct sensations, information based on sensations, or inferences based on sensory data). It is significant that, with the exception of the first category, examples of violations of principles in the other three categories require the belief that mind, instead of being a process, has thinglike properties and is separable from its substrate, the brain. In chapter 2 we discuss the proposition that reification of the subjective is one of the roots of magical thinking which, in turn, underlies many of the phenomena that we have called anomalistic.

We refer to all behaviors and experiential phenomena that traditionally have seemed to constitute violations of the basic limiting principles as anomalistic. The term *anomalistic psychology* suggested itself to us upon coming across a proposal, made by the anthropologist Roger Wescott (1977), to prefix the term *anomalistic* to the name of any discipline that dealt with what are often called paranormal phenomena. The meaning of the term *paranormal* is not very clear. Among parapsychologists, two views prevail concerning the nature of extrasensory perception, psychokinesis, and other so-called psi phenomena. Some parapsychologists hold that such phenomena are not outside the natural order, only that they are not yet understood. Others hold that psi phenomena are not fully explicable in naturalistic terms, and that extraordinary mind-matter interactions are involved that do not obey known laws of physics and chemistry. The term *paranormal*, as used by parapsychologists, therefore, may include either one of these conceptualizations. In the following, we avoid this term except where its use has been well established by custom.

In speaking of paranormal or anomalistic phenomena we do not mean that the phenomena themselves are extraordinary. The only sense in which an event itself may be extraordinary is in the sense of the degree to which its frequency deviates from a theoretically expected frequency. Science deals with both ordinary (frequent) and extraordinary (infrequent) phenomena, but there is no idea of the paranormal associated with the latter. That notion arises only in connection with the *explanations* offered for phenomena, be they ordinary or extraordinary. It is the terms of the explanation that may violate the basic limiting principles and not the phenomenon itself. Anomalistic psychology therefore deals with phenomena of behavior and experience that have been explained in paranormal, supernatural, occult, in short, magical terms. We must also point out that in deciding which phenomena should or should not be included in this text, our criteria did not include such factors

as the credibility or reputation of the source of the paranormal explanation or the plausibility of the reports of the phenomena. What we did consider was (a) whether a behavioral or experiential phenomenon had been in fact observed, (b) whether it had been given a magical explanation, and (c) whether such an explanation had been offered with sufficient frequency, that is, we left out of consideration extraordinary but idiosyncratic explanations of phenomena offered and adhered to, in the extreme case, by a single individual, however vociferously.

Although these criteria do help to distinguish between phenomena in psychology that are anomalistic and phenomena that are only anomalous, they do not provide a clear line of demarcation between the former and anomalistic phenomena of other types. Anomalistic phenomena of any type are observed phenomena and, therefore, involve not only the nature of that which is being observed but also the characteristics of the observer, such as the observer's biases and preconceptions, beliefs, and current misperceptions, at least to some extent. The UFO is a case in point. It is a fact that there are objects or various origins in the sky and that sometimes these objects cannot be identified. If the behavior of such an unidentified flying object is perceived as unusual, the phenomenon may be classified as an anomaly. The hypothesis that some UFOs have an extraterrestrial origin does not necessarily place its originator among pseudoscientific or magical thinkers, because life in other solar systems is a distinct possibility. The UFOs acquire psychological interest when misperception of objects under difficult viewing conditions is involved or when beliefs and expectations affect that which is perceived. They also acquire interest for the psychologist when people experience fantasies or hallucinations of being abducted by UFOs, examined or raped by their occupants. This still does not make these fantasies and hallucinations different from others. The link between UFOs and magical thinking is largely an indirect one in that UFOs usually form part of larger belief systems that include other anomalies and phenomena whose explanations do include magical thinking, such as the belief in reincarnation, extrasensory perception, astrology, and the like. The preferred mode of communication between UFO occupants and terrestrials, for instance, may be asserted to be telepathy.

In addition, what is anomalistic and what is not are also functions of the passage of time. Although the concept of hypnosis has evolved through the clearly magical stages of magnetic fluids and mysterious influences over distance to the present-day scientific concepts of altered state of consciousness or role-playing, it retains its magical connotations through association with hypnotic age regression, reincarnation research, various automatisms, and the like. In more recent times, parapsychologists speculated that psychic ability was involved in bats' aerial navigation and the skill displayed by some individuals in reading and identifying color with their skins ("dermal vision"). When

bat sonar was discovered and some of the skin readers were identified as frauds or other cases were shown to be instances of trainable differential sensitivity of the skin to thermal radiation, parapsychological interest returned to its former concerns. In some quarters, however, a magical explanation of these phenomena is still preferred.

The labeling of anything as *supernatural* implies that the cause of the phenomenon is known, that it is some supernatural entity—a god, a devil, or a spirit—and that no further enquiry concerning the nature of the phenomenon is necessary. Rich as it may be in emotional meaning to many people, the term supernatural has no standing with science. A scientist who decides to investigate a phenomenon that seems to defy natural explanation will first attempt to explain it by establishing a relationship between its antecedent causes, physical or psychological, and their consequent effects. If the phenomenon defies subordination to the natural order of things at first, observing it repeatedly may lead to the establishment of a reliable relationship and a formulation of the general principles according to which the phenomenon occurs. It is possible for a phenomenon to elude all attempts to establish a cause–effect relationship for it. This still does not mean that it is supernatural. Chance alone can produce highly meaningful coincidences. An unusual event may also be a non-event, in that it may not be a uniform set of phenomena but a different kind of thing every time it is observed.

There is, of course, the possibility that it might be necessary to invoke a new principle of nature to explain an anomalistic phenomenon and, in the process, to revoke one or more of the basic limiting principles. Because a revision of what is normal, natural, and scientifically lawful would be called for, in addition to requiring compliance with the usual requirements that are imposed on scientific methodology, the burden of proof that a paranormal event has occurred is placed on those who make the claim. What this amounts to is that as long as a naturalistic explanation is possible, that explanation, regardless of how unlikely it may appear, will be invoked by the skeptic, it being up to the proponent of the paranormal explanation to show that the naturalistic explanation is inappropriate. In addition, the demand is made that the weight of evidence presented in favor of the paranormal claim be commensurate with the strangeness of the facts. Demanding that extraordinary proof be produced for extraordinary claims is known as the principle of Laplace (so named after the French astronomer and mathematician Pierre Simon Laplace, 1749–1827). These requirements may appear to be unduly limiting. They may be not only used but misused to the point where no amount of evidence of a paranormal claim will avail against a skeptic who has already prejudged the issue. To temper the harshness of the principle of Laplace, Theodore Flournoy, a Swiss psychologist, suggested that both it and another principle, which he called the "principle of Hamlet," be used when investigating paranormal phenomena. The principle of Hamlet simply states that all is

possible. It is not very frequently invoked by disbelieving scientific investigators of the paranormal, however.

Two other terms that are used in the following pages are *occult* and *esoteric* and their derivatives. Occult means (a) that which is mysterious and beyond the reach of ordinary knowledge; (b) secrecy, exclusiveness, and the communication of arcane knowledge to the initiated only; and (c) pertaining to metaphysical systems characterized by monistic idealism, which stress the basic interrelatedness of everything in the universe and, hence, the possibility of action through affinity or magic, as in astrology and theosophy. *Esoteric* means designed for or understood only by those who have been properly initiated. It therefore overlaps with only the second meaning of *occult* and can be applied to knowledge that has no paranormal connotations whatever. Although the term is so used ordinarily, some groups use the term *esotericism* as a synonym for *occultism.*

Social scientists have stressed different, sometimes contradictory aspects of occultism. Marcello Truzzi, who has concerned himself with the problem of defining the occult (Truzzi, 1971), stated that the common denominator for most perspectives labeled *occult* "is that they in some way concerned themselves with things anomalous to our generally accepted cultural storehouse of 'truths.' That is, we are dealing here with claims that contradict commonsense or institutionalized (scientific or religious) knowledge" (p. 367). Because the basic limiting principles are part of the "cultural storehouse of truths," *occult* and *anomalistic* become synonymous in Truzzi's definition.

In his definition of occultism, Truzzi stated that its claims are contradicted by both scientific and religious knowledge. They are not only contradicted, but rejected, by institutionalized science and religion. The best example of this is theosophy. Modern theosophy is a body of teachings labeled as a synthesis of science, religion, and philosophy, but is rejected equally by all three. Theosophy is the best example of what occultism means because it represents a body of knowledge that incorporates most of the esoteric teachings and occult practices of the past, does not accept the supernaturalism of religion, but equally rejects the materialistic and deterministic views of science and emphasizes the hidden, occult nature of its knowledge. Much of this knowledge, of course, has been made openly available through numerous publications, lectures, and courses. Some of it, however, has been reserved for an inner circle of disciples, to whom it is imparted after due initiation, as has always occurred in all mystery and initiatory groups.

ANOMALISTIC PSYCHOLOGY AND PARAPSYCHOLOGY

Psychology's relationship to the paranormal and the occult has always been ambivalent. Even though parapsychology has the word psychology in its name, it has never been part of psychology, and parapsychology has not exercised

BOX 1.1. THEOSOPHY

Theosophy (from the Greek *theos* [god] and *sophia* [wisdom]) is religious and philosophical thought that derives a view of the universe, humanity, and humanity's place in the universe from an insight into the constitution and operation of the divine. The insight is arrived at intuitively or is revealed by superior or more advanced beings. Because no clear distinction is made between religious and philosophical modes of thinking and the role of logic is minimized, theosophy is closer to Oriental than Occidental thought. India gave birth to the earliest theosophical speculations, and the similarity between these and certain features in the thought of Western theosophists who knew little or nothing about India is often pointed out. The imperfection of this world and of human beings and the aspiration to achieve the same exalted states of being as characterized by seers and masters who reveal the divine wisdom is a cardinal feature of theosophical systems. Jakob Böhme is the best example of an early Western theosophist. He was influenced by such men as Paracelsus and Cardano, who during the Renaissance, combined theosophy with physics or chemistry as well as with such other but related forms of thought as neoplatonism, mysticism, hermeticism, and cabalism.

It is the modern version of theosophy that is of importance to anomalistic psychology. It combined into a synthetic conglomerate Indian philosophy, Buddhism, gnosticism, hermetism, cabala, most of the paranormal and occult practices dealt with in this book, as well as many others, and added a generous portion of modern science, especially the notion of evolutionary development. Theosophy became the treasure trove from which hundreds of groups, organizations, cults, and movements that were to parallel it took their items and, in combination with their own special revelations and terminologies, presented them to the world as their brand of Ancient Wisdom.

The founder of modern theosophy was a Russian adventuress, Helena Petrovna Blavatsky, an extraordinary woman of the 19th century who represented an amazing blend of intelligence, shrewdness, vulgarity, unattractive physical appearance, temper, prodigious working capacity, and contempt for people with the ability to control them if they were eager to believe in miracles. She was born Helena Hahn in Russia in 1831. At age 17, she married an official by the name of Blavatsky, 25 years her senior. The marriage lasted only a few months, after which HPB, as she is known among occultists, went traveling in different countries, reportedly in Greece, Egypt, Turkey, and Tibet, among other places, although what she did for the next 25 years is mostly mystery clad in legend. It is known that for a number of years she made a living as a medium in Cairo.

any major influence on psychology. On the other hand, if telepathy and other such phenomena are granted even the most tenuous status of unlikely hypotheses, these hypotheses clearly concern subject matters that are psychological in nature and therefore ought to be tested by psychologists. Parapsychologists deal with human experiences and behaviors using the same labora-

In 1872, she arrived in New York, met Colonel H. S. Olcott, who immediately fell under her spell and with whom she founded the Theosophical Society in 1875. In 1877, HPB published her first compendium of theosophical lore, *Isis Unveiled* (Blavatsky, 1877/1950).

The aims of the Society were declared to be: (a) to form a nucleus of the universal brotherhood of humanity; (b) to promote the study of comparative religion, philosophy, and science; and (c) to investigate the unexplained laws of nature and the powers latent in man. *Isis Unveiled* was an incredible collection, totally unsystematic, of the occult lore of all nations, which HPB had presumably gathered during her extensive travels, presented as the secret wisdom of the ages and revealed by her. Both acclaim and criticism followed.

The magnum opus of theosophy, *The Secret Doctrine,* (Blavatsky, 1888/1946) in six volumes, replaced *Isis Unveiled* in 1888. It was a somewhat more coherent work than its predecessor. HPB claims that in order to write it she had consulted numerous reference works in many libraries—not in person but traveling in her astral body. In *The Secret Doctrine,* HPB made an important connection with science by claiming the idea of evolution as the focal part of her doctrine. Not only do plants and animals evolve over very long periods of time, but so do humans, human races, planets, and deity itself. Evolution is the law of the universe. Many pages of polemic are devoted to this subject. The second important point that was added to the occult lore by HPB was the notion of the Mahatmas or Masters. Unlike the spiritualists who obtained their information from the spirits of the departed, HPB claimed a much more refined and exalted source of information, humans who had advanced far ahead of the rest of humanity on the evolutionary road, had access to knowledge no ordinary human had, possessed marvelous abilities, such as those of materializing objects, teleportation, and clairvoyance, and who usually worked on levels of existence other than that of gross physical matter, although they still used their physical bodies when convenient. The Masters were said to control the destiny of humanity by means of messages to world leaders, to be fighting the forces of evil, and to reside in secret places, not visible to anyone but those specially favored. At first, HPB located the secret brotherhood of Masters in Luxor, Egypt, with Tuiti Bey as the leader. Later, the Mahatmas were transferred to Tibet, and the leadership acquired an Indian complexion. In the fully developed theosophical scheme, the Masters are of all nationalities, and include such personages as Jesus and the Count Saint Germain.

Other topics that may be found in *The Secret Doctrine,* either in full or in germinal form and elaborated later by theosophical writers, and that are now familiar to those who are "into" the occult are: the lost continents of Atlantis

tory methodologies and statistical treatment of data as conventional psychologists are using. Still, surveys show that of all groups of scientists, psychologists are least apt to believe parapsychology's findings (e.g., Wagner & Monnet, 1979). With the exception of relatively few individuals who have shown interest in parapsychology or have done parapsychological research

BOX 1.1., *continued*

and Mu and their civilizations; the nonphysical bodies of man, such as the etheric and astral bodies; astral projection; clairvoyance, karma and reincarnation; vibrations and forces unknown to science, ancient astronauts, and many others. Through all of this runs the unifying thread of the idea of evolution as the supreme law of the universe and its implications for humans in terms of the possibility of spiritual advancement and the development of capacities not available to those who do not work toward self-perfection.

Madame Blavatsky remained in New York until 1882. In that year, she decided to move the headquarters of the Theosophical Society to the mother country of theosophy, India, where the "vibrations" were better and the Masters were closer. Accordingly, headquarters was established in Adyar, Madras, where it remains to this day. In 1885, during an absence of Madame Blavatsky, the London Society for Psychical Research conducted an investigation of her miracles (over 50 had been listed by her adherents), such as the precipitation, from the ceiling, of letters written by the Mahatmas. The investigation disclosed that her miracles had been fraud or trickery, performed in collusion with a caretaker couple, the Coulombs. The disclosure had little effect on the Society, however.

HPB died in 1891, and Colonel Olcott, who had been President of the Society, died in 1907. In that year, the presidency was taken over by Annie Besant, an English socialist, social reformer, union organizer, and Indian independence leader, who in 1889 had suddenly converted from materialism and atheism to theosophy upon reading *The Secret Doctrine*. Her ability as an organizer and propagandizer was responsible for the spread and influence of theosophical ideas in spite of the numerically small size of the Theosophical Society

The most dramatic event during Annie Besant's presidency was the discovery, in 1909, of Jiddu Krishnamurti, an Indian boy who she believed would serve as the vehicle for the reincarnation of a new world savior. By 1929, Krishnamurti decided that was not to be, and went his own philosophical way, renouncing the need for reliance on any masters for occult knowledge. Like the Coulomb affair, Krishnamurti's defection had no major impact on the Theosophical Society or on the acceptance of its teachings. Today, there are no messiahs or miracles associated with the Society, but the legacy of Helena Petrovna Blavatsky continues to live in Adyar, the American headquarters at Wheaton, Illinois, and other centers throughout the world, the journals of the Society, its books, and especially in the minds of all those who are members of the countless groups that are the offshoots of the theosophical tree.

themselves, psychologists have shown little interest in parapsychology, and contacts between the two fields have been infrequent.

After the introduction of the methodology of controlled observation in psychology in the mid-19th century, two trends in research on anomalistic phenomena can be seen. They are less distinguishable in terms of the specifics

of research methodology than in terms of the world views held by the researchers involved. Paranormal research is usually instigated by a person who is already predisposed to believe in the reality of paranormal phenomena and will offer explanations of such phenomena in terms of energies and principles not recognized by science. This type of researcher will typically hold a dualistic world view, which he or she seeks to validate by placing it on an empirical foundation.

Although anomalistic research has been conducted as long as paranormal research, it has not been identified as such until recently. One of the reasons is that it has been confounded with paranormal research because the subject matter is the same. Another reason is that it may often blend with ordinary research. Much of the research that is mentioned in this book has been culled from the work of many people in just about every field of science who, at the time they did their research, may not have even been aware that they were doing anything out of the ordinary. The home base of an anomalistic researcher is one of the established sciences, and the anomalistic phenomenon is investigated and subsumed under one or another rubric of that science. For this reason the two kinds of researchers will often look at the same phenomenon in the same way, that is, use the scientific method, but draw entirely different conclusions regarding the meaning of what they see.

ANOMALISTIC PSYCHOLOGY: FROM THE BEGINNING

Benjamin Franklin's experiments on animal magnetism, conducted in 1784, were not only some of the earliest psychological experiments but probably also the first instances of experiments in anomalistic psychology. During his stay in France as the American ambassador, Franklin was appointed by the French government to head a commission to investigate animal magnetism, in vogue as a cure for assorted ills. The commission's finding, based in part on several experiments carried out by Franklin, was that imagination was responsible for the magnetic cures. It had been claimed that cures could be achieved by having afflicted persons stand under trees that had been "magnetized." Franklin performed the experiment of telling some peasants that certain trees had been magnetized when in fact they had not, and asking them to stand under these trees. Those who did were cured as effectively as the mesmerists' patients. The significant aspect of this affair was that Franklin used the method of science to test a paranormal claim and that he explained the phenomenon in terms of the then current scientific knowledge.

In 1848, the Fox sisters began the modern age of communication with the dead by surreptitiously making raps with their toe joints at their Hydesville, New York home. Spiritualism was soon to blossom. Psychical research came into being, at first, to investigate the performance of the mediums who claimed

to act as intermediaries between the living and the dead, and later also to research the phenomena associated with mediumship, such as telepathy, clairvoyance and precognition, psychokinesis, altered states of consciousness, unorthodox healing, as well as perception and eyewitness testimony. For this purpose the Society for Psychical Research was founded in London in 1882. And yet, neither the psychical investigations of the Society nor the later parapsychological investigations of J. B. Rhine were anomalistic psychology. The material is grist for the mill of the anomalistic psychologist, and the psychical researchers often use psychological language to describe what they find, but the enterprise itself is not anomalistic psychology because those engaged in that enterprise do not treat the material within the framework of the science of psychology, do not start out and return to the base of psychology, and do not relate their findings to psychological knowledge in general in any systematic way. Rather, the research is to prove a particular ideological point: that humans have souls, that these souls survive the death of the body, that telepathy, and so forth, are a fact, and therefore, science's view of human beings and the world is invalid.

Public interest in psychical research in the 1880s and 1890s was so great that psychologists were forced to react to it, even if they did not believe in spirits. G. Stanley Hall, Edward Bradford Titchener, Edward Wheeler Scripture, Edmund Burke Delabarre, and others were incorporating material on psychical research into their texts and lectures, and they published papers on the subject. Titchener kept a running count of believers among his students. Hall was able to start the *American Journal of Psychology* because a psychical research enthusiast offered him the money to start a psychological journal in the mistaken belief that experimental psychology was a synonym for psychical research. Joseph Jastrow was laying the foundation of American abnormal psychology by translating psychical research findings into the language of abnormal psychology, and wrote a popular book on the occult in the light of psychological knowledge. William James, the best known American psychologist of his time, played a particularly important role in psychical research. Besides being a cofounder of the American Society for Psychical Research, he published some 15 papers, lectures, book chapters, and reviews on topics of psychical research, wrote numerous letters in which he dealt with its issues, and studied mediums personally. He advocated experimentation, but of his four published experimental studies, three were on topics in anomalistic psychology. His work on automatic writing (James, 1889) influenced Jastrow, who pursued it using a planchettelike device. Still, with all his involvement in psychical research and related matters, James was neither a psychical researcher nor can his work be called anomalistic psychology. What James did was a reflection of his incessant struggle to resolve the subjective-

objective problem, a problem in philosophy, and not by a desire to enhance a science.

The last two decades of the 19th century saw not only the rise of laboratory psychology, the heyday of spiritualism and psychical research, but also the appearance of the first textbook of anomalistic psychology. For having written it, the Danish psychologist Alfred Lehmann [1858–1921] may be rightfully called the "father of anomalistic psychology." Neither Lehmann nor his book are very well remembered these days, although at the time he published *Superstition and Magic* (in Danish, in 1893 and in German, in 1898) he was on his way to become Denmark's most prominent psychologist. Lehmann had obtained his PhD in experimental psychology from Wilhelm Wundt. Most of his work had been in the area of sensation and emotion, particularly the latter, and a book on superstition and magic might have seemed an unusual excursion away from one's normal concerns. Lehmann, however, relied heavily on the psychology of perception to bring many of the anomalistic phenomena he discussed to a common denominator by explaining them as errors of observation.

Lehmann's work differed from the work of both his contemporaries and the work of those who wrote on the subject for the next three decades. Lehmann used data, obtained both by others and himself, from experiments and other objective scientific methods, to explain anomalistic phenomena; the explanations were based on the then available knowledge from general and abnormal psychology; and, above all, it was a systematic enterprise covering a variety of anomalistic phenomena.

Lehmann's book is organized by origins, not topics: Of the 543 pages of text, about three fifths are devoted to an exhaustive history of magic and superstition and the remainder to a consideration of the psychological bases of various anomalistic phenomena. The latter portion is significantly titled, "Man as the Center of Magical Forces." Moreover, the historical part is presented not only as the history of a particular aspect of culture but to show that spiritualism and modern occultism were not new but the continuation of an extremely old tradition and, most importantly, that they were the result of a particular way of thinking, magical thinking, or, as Lehmann called it, the magical states of mind. He maintains an uncompromising scientific attitude throughout his work, even while granting that some extraordinary phenomena might have to wait for a scientific explanation. Lehmann did not publish anything in this area after 1893, although the book enjoyed two subsequent editions in its German translation (1908 and 1925, the latter published posthumously and with collaborators).

Joseph Jastrow published a book on extraordinary psychological phenomena just 7 years after Lehmann had published his. *Fact and Fable in Psychology* (Jastrow, 1900) was a collection of articles that Jastrow had published in the

popular periodical literature and had rewritten to fit the format of a book. The book deals exclusively with anomalous and anomalistic behaviors and experiences and refers them to scientific psychological knowledge. Each chapter stands on its own, however, the various topics not being related to the whole field of psychology or to any kind of theoretical framework. After the turn of the century, with the Zeitgeist favoring a more objective psychology, psychologists (and not very many of them), instead of making anomalistic psychological phenomena part of general psychology and dealing with them like the rest, were only occasionally testing paranormal claims, publishing the (negative) results, and assuming that the matter had been laid to rest. Leonard Troland's (1917) investigative foray into the realm of telepathy is a good example. Carl Murchison (1927) published a collection of arguments for and against psychical belief that he had gleaned from a handful of psychologists, William McDougall's belief in and activity on behalf of psychical research received some attention, but we see no major events until 1935 when Jastrow's *Wish and Wisdom* appeared. It is a work very different from *Fact and Fable in Psychology*. It compares favorably with Lehmann's *Magic and Superstition* as a text of anomalistic psychology. (Neither here nor in *Fact and Fable in Psychology* did Jastrow mention Lehmann or his work). *Wish and Wisdom* is organized around a central psychological theme, namely that wishing interferes with rationality and that wishful thinking takes the form of credulity, propensity for magic and marvel, and reification of the subjective, forcing facts to follow belief, reaching congenial conclusions, indulging in cults and vagaries, and rationalization. Jastrow called these the seven propensities, and the seven parts of the book are organized around these themes, with Jastrow providing a general introductory statement to each, followed by concrete illustrations.

No major work on anomalistic psychology was published during the next 39 years until Reed's (1972) book on the psychology of anomalous experience presaged the resurgence of interest in and the heightening of awareness of anomalistic psychology that was to occur in the 1980s.

2

Magical Thinking

In this chapter we propose that magical thinking is wholly or partly at the root of any explanation of behavioral and experiential phenomena that violates some law of nature or suggests, without supporting evidence, the existence of principles, forces, or entities unknown to science. Magical thinking is the belief that (a) transfer of energy or information between physical systems may take place solely because of their similarity or contiguity in time and space, or (b) that one's thoughts, words, or actions can achieve specific physical effects in a manner not governed by the principles of ordinary transmission of energy or information.

Magical thinking is universal. Magic, and therefore magic thinking, have been part of all human groups since prehistoric times. Although it is true that magic has been associated more with preindustrial societies, magical thinking is by no means absent in the modern industrial world where science is the dominant ethos. Magic not only preceded science, but science arose from magical pursuits and, for a time, coexisted with science as a legitimate confrere. (Lynn Thorndike [1923–1958] documented the evolution of experimental science from magic in his monumental work, *History of Magic and Experimental Science.*) The antiquity and persistence of magical thought is such that one must seek its roots in some very fundamental psychological processes. In the following, we consider the origins, mechanisms, and dynamics of these processes.

UNCERTAINTY

Psychologically, the realization that one does not know or that one lacks certain information equals the realization that this gap in information must be filled. One experiences a state of cognitive motivation, the motivation to

remove the uncertainty. Magical thinking arises in connection with uncertainty concerning cause–effect relationships. A "why?" question requires a "because" answer. If the information is not available, incorrect information will be used.

There are several reasons why we may not have the correct or complete information concerning cause–effect relationships. The essence of physical causation is the transfer of energy between systems. Stated this way, causation is a relatively recent scientific concept, and for that reason alone, would not be available to persons not grounded in science. This is not to say that there was no conception of causation prior to the advent of science. There was, but it took the form of observed regularities in natural phenomena, the concept of laws of nature. However, because the underlying principle of energy transfer was unknown, regularities that were not due to causation were also thought to be cause–effect linkages.

Thus one condition leading to inadequate information concerning causation is inadequate understanding of the physical world. This can occur either because society has not yet reached the developmental stage where science becomes possible or because the individual is still too young to have developed the concepts necessary to understand causation the way the scientist understands it. Cognitive underdevelopment is therefore one major determiner of uncertainty concerning cause–effect relationships. It is a state-contingent condition of uncertainty.

But even an adult in an industrial society can succumb to magical thinking if that adult does not have a grounding in scientific thinking and lacks information concerning the true nature of a phenomenon. The latter occurs most often when

1. The energy transfer feature is not obvious, or under conditions that make its observation difficult or impossible;
2. The phenomenon is rare or appears to be rare and therefore to lie outside the range of the more common phenomena known to be governed by natural laws;
3. The circumstances surrounding the phenomenon involve chance to such an extent that the phenomenon itself appears to be due to chance and hence subject to magical influences;
4. Little or no control can be exercised over events, and the predictability of such events is slight;
5. Psychopathological states distort the thinking process to a degree where fantasy and therefore magical thinking replace causal thinking.

These conditions of uncertainty could be described as situation-bound. When the anthropologist Bronislav Malinowski invoked the concept of uncertainty

as a factor in the use of magic by members of traditional societies, he was referring to uncertainty that was the joint product of both their cognitive state and the situation they were facing. Malinowski concluded from his field observations that the primitive will not resort to magic when able to rely on past experience and when the situation is a familiar one in terms of cause–effect relationships. Magic is resorted to only when there is uncertainty (Malinowski, 1954). Malinowski observed that Melanesian islanders did not resort to magic when fishing in safe waters, but did so when deep sea fishing away from the island. They did not engage in magical rituals when gardening, building boats, or sailing, but they returned to magic when the forces at work made the results unpredictable and where skill and knowledge alone were not sufficient: fighting garden pests, securing the appropriate wind for sailing or weather for gardening, to prevent disaster at sea, sickness, or personal accidents. Malinowski's field observations thus parallel the later experimental findings (e.g., Subbotskiĭ, 1984) that magical (animistic) and naturalistic perceptions (and explanations) of the world coexist in young children as well as the historical fact that while in Western Europe before the advent of science magic pervaded all strata of society and all areas of life—most everyday activities were guided by naturalistic considerations.

Confirmation of Malinowski's thesis can also be found in more recent research and in industrialized societies. For instance, Padgett and Jorgenson (1982) related the degree of economic threat (levels of real wages, unemployment, industrial production) in Germany between 1918 and 1940—which translates into uncertainty about the future—and magical thinking. The latter was measured by counting the number of articles on astrology, mysticism, and cults that appeared in German periodical literature during the period. They found that, "just as the Trobriand islanders surrounded their more dangerous deep sea fishing with superstitions, Germans in the 1920s and 1930s became more superstitious during the times of economic threat" (Padgett & Jorgenson, p. 739). In a similar vein, McCann and Stewin (1984) found a positive correlation between unemployment and the output of parapsychological literature during the period of 1929 to 1975—a negative correlation with disposable per capita income, and positive correlation with the subjective threat weightings of historians and social critics. Again, these factors can be seen as leading to an increase in uncertainty concerning one's well-being and the future.

The relationship between uncertainty and magical behavior obtains not only in traditional, but industrial societies as well. Superstitions and magical rituals are more prevalent in occupations where chance plays a large role and the outcomes of one's actions are less predictable, as among gamblers, soldiers, sailors, and actors. Lesser uncertainties in practical affairs similarly invite magical rituals: games, examinations, and the weather are prime examples.

Magic may be used where there is little or no uncertainty, however. The uncertainty principle does not very well explain maleficent magic, for in-

stance. Jahoda (1969) proposed a less stringent formulation of Malinowski's position that magic is resorted to only when chance and circumstances are not fully controlled by knowledge. His proposed substitute that "where chance and circumstances are not fully controlled by knowledge, man is more likely to resort to magic" (p. 128) leaves room for different explanations of magic in cases that do not involve uncertainty.

Similarity, Contiguity, and Associative Learning

When uncertainty prevails, events that are merely correlated may be perceived as causally related. Causation is seen not in some energy-transfer feature linking the two events, however, but in a much more readily observable communality: either in the *similarity* between the two events (or the things involved in them) or else in the fact that the two events are occurring at the same time or the same place (temporal and spatial *contiguity*). All directly and easily observable causal interactions that impress themselves upon humans by their daily frequency and inevitability (falling objects, cutting edges, burning fires) involve contiguity in time and space, that is, the objects involved in a causal event are adjacent to each other or are in contact, and there is no delay between cause and effect. By reverse reasoning, spatial and temporal contiguity are assumed to be evidence of causal interaction. Another universal observation is that cause and effect often share some common characteristic. Although similarity between cause and effect is a coincidental and inessential factor, by reverse reasoning the principle that "like affects like" becomes another substitute for energy transfer.

As the similarity and contiguity between potential causes and effects decrease, the causal nexus between them appears less and less compelling, and it becomes necessary to learn whether such a nexus exists and what its nature is. This is a process different from merely learning that two things always occur together. It is not only a matter of information acquisition about events in a relationship but also of acquiring appropriate explanatory theories about causation. Both the information and theory provide individuals with cognitive control over their environments. They are acquired from the culture's educational institutions—the family, the tribal sage or shaman, or the schools. If the concepts of energy and energy transfer are absent, mere similarity or contiguity will be their substitutes, environmental features directly perceptible by the untrained and undeveloped mind.

When two events fail to become connected because one does not obviously produce the other, and a direct, perceptually based causal nexus likewise fails of establishment because the proper stimulus configuration is absent, a relation between two objects, events, or the corresponding ideas may become established nevertheless, and this relation may then be taken to represent a connection, that is, a production or causal relationship. It is a case of associative

learning, first formally taken cognizance of by Aristotle: If two ideas occur together, each of them by itself may evoke the other. Aristotle cited spatial and temporal contiguity, as well as contrast and similarity as factors that facilitate associative learning, and contiguity and similarity/contrast have been invoked as the main factors in associative learning by all who followed Aristotle in time and had something to say about the association of ideas, notably the members of the British school of associationism. Classical, or Pavlovian, conditioning is also known as associative learning because of the necessity for the unconditioned (reflex-producing) and conditioned (neutral) stimuli to be in temporal contiguity for conditioning (association between them) to take place. Much associative learning that results in magical thinking, such as superstition, also occurs following the instrumental learning paradigm. This topic is discussed in more detail in chapter 6.

Although resemblance and propinquity are required for an association between ideas to take place, that association may not correspond to any association of events in the physical world. One significant aspect of magical thinking is that there is a confusion of semantic and physical relationships, a confusion between one's interpretive categories and the events they refer to. It is easy to fall into this confusion because similarity and contiguity are directly perceived from the earliest infancy, whereas contingency and other hierarchical relationships are not ideas that arise in the mind on their own.

In spite of the ample opportunities to misperceive cause–effect relations that are afforded by life, even members of primal societies and developing children do not do too badly in following their daily routines. Stones, hammers, and toys, if unsupported, fall to the ground invariably, knives cut wood only when guided by hand, and water boils only if heated. The English philosopher David Hume made the point that this is precisely how we arrive at the notion of causality: We experience B following A so many times that a perfect correlation is established in our minds between A and B, which means that we will fully expect A to lead to B every time A occurs and to perceive the relationship between A and B as a causal one. Perfect correlations can occur, however, without any sort of energy transfer between systems A and B, because both A and B may be the effect of a cause C, common to both A and B. The difference between those who think magically and those who do not is the awareness of a principle that allows one to distinguish between phenomena involving systems that are in fact in a causal relationship to each other and those in which the systems are merely statistically correlated.

SELF-AWARENESS

One of the differences between inert matter and living organisms is that the latter have the property of reactivity—they respond adaptively to external stimuli. The difference between animals and humans is that although both

react to stimuli and have some internal "picture" of the external world, only humans are able to produce a symbolic (verbal) discourse that parallels this picture and can be engaged in even when external stimulation ceases. In other words, we *think about* our experiences, whether they are in the present, the past, or are yet to come. The immediate and inevitable outcome of this is that the part of us that does the thinking, the thinker, begins to think of oneself as a separate entity, a self, an "I." Purely subjective experiences, such as dreams, reinforce the notion not only of a separate, but even a separable, self that is different from the rest of us, the body. The linguistic conventions, "I," "self," "soul," "psyche," "spirit," "ka," and many others, refer to this notion of an inner man. The idea of an inner man, in turn, leads to other ideas that are in the nature of magical thinking.

Reification of the Subjective

The illusion that the self-aware "I" is an entity separate and distinct from the physical body is an overwhelming and inescapable one. The self and all its functions—perceptions, thoughts, dreams, images, memories, wishes, emotions—achieve such a degree of apparent autonomy that it may seem quite plausible that a wish or a thought should be able to lead an independent existence, even outside the nervous system. Children quite literally think that dreams are a physical reality outside them, and the occultists may think of thoughts as "thought forms," roundish formations, perhaps with wings, that one may project outside oneself and propel toward other brains and minds. When Sigmund Freud noted the belief in the omnipotence of thought in children and schizophrenics (Freud, 1950), he was recording the belief in the magical ability of thought to achieve any effect imaginable. When the subjective is endowed with properties like those of the objective world, it is said that the subjective has been reified.

The specific forms of reification are innumerable, from outright word magic used in spells and incantations and the "building of thought forms" by the occultists, through the half-playful, half-magical wishing "very hard" for a desired outcome, to the seemingly scientific "exteriorisation de la sensibilité" of a Rochas D'Aiglun (see p.80) and the various forms of conjectured but nonexistent forms of energy (bioplasm, psychons) that root in the human psyche.

Cognitive Conflicts: The Mortality–Immortality Conflict. The idea of a reified self, separate from the body, plays into the hands of at least two universal conflict situations. Conflicts act as motives. In cognitive conflicts ideas are in conflict, and the motivation is to achieve a resolution of the conflict, also in the ideational plane.

One cognition that everybody has is that all humans are mortal. The conflicting cognition is the awareness of the body's striving to keep on living, to transcend one's mortality. How is the conflict between these two cognitions resolved? It may be resolved by ignoring or denying one of the cognitions (which, in this case, is hardly possible), or by adding other cognitions that serve to decrease or eliminate the conflict, which is indeed what takes place: The added cognition is that, although the body is mortal, the inner man is not and can transcend the body, perhaps not only in death but also in life. Some of the consequences of this added cognition are the possibility of communication with the dead, out-of-the-body experiences, possession of one's body by other disembodied entities, and similar magical events. Once the premise of immortality, immateriality, and transcendence is granted, every magical act on the part of the transcending self becomes possible.

Cognitive Conflicts: The Reality–Imagination Conflict. It is all too painfully obvious that our physical bodies are inextricably space- and time-bound. This gives rise to another form of the wish to transcend one's limitations. There are the dissonant cognitions that although one can imagine the body unfettered by natural laws, the depressing fact is that our senses are limited, that we cannot see through walls or hear another person's thoughts; that the speed at which we propel our bodies through space or move our limbs is very slow; that neither our bodies nor the bodies of others can be changed at will; and that every act requires an effort to overcome the gravitational pull and the solidity of matter. These compelling forces and circumstances make life monotonously predictable and wearisome. There is the wish to transcend the limitations of material bodies, the laws of nature. Why can't we be as free and unencumbered as our imagination allows us to be? Fantasy fiction, fairy tales, legends, and the magical traditions of the world are eloquent proof of the power and universality of this form of the wish to transcend our limitations. They are replete with accounts of humans changing into animals and vice versa, of carpets and brooms that fly by magical powers, of witches and wizards making things disappear or producing them out of nothing, of invisibility and instant transport to remote places, and countless other instances of natural laws being overridden. When the distinction between what is possible in the world of imagination and what is possible in the real world blurs, magical thinking holds sway.

Interactions

Uncertainty about the true cause of an effect and the complementary need to identify this cause often combine with the belief in an autonomous, real (reified) self, leading to some very specific forms of magical thinking. For example, occultists are apt to explain phenomena that science is presumably

at a loss to explain in terms of hidden, occult forces and energies that are designated as cosmic, mental, psychic, spiritual, or astral. These are not further described, but in each case the source of the energy is assumed to be the inner man or some noncorporeal (mental, spiritual) entity. In other words, the reified self is made into a causal agent on a par with a physical system.

CAUSATION AND THE HUMAN AGENT

The distinction between physical causes and causes where the mind alone seems to be involved, (i.e., psychological causes) is made by labeling psychological causes *reasons*. The physical cause of my getting up from my chair is the temporary overriding of the gravitational pull by the muscular action of my body, but the psychological cause of it (the reason) is my decision to switch my television set to another program. The difference between physical causes and psychological causes is the difference between energetic and informational processes. Much magical thinking involves the failure to understand the difference between them, but especially the difference between the energetic and informational processes themselves and the subjective experiences that correspond to them.

Energetic processes involve energy transfer between systems, such as from external physical systems (the sun, the plants, moving objects, other people) to ourselves, from system to system within ourselves, or from us to some external system. The same applies to information, except that the function of information is to inform, not to energize. Informational processes are physical processes nevertheless, and require some energy, but only as a means whereby information is transmitted. Because both energetic and informational processes are physical, energetic processes lead to informational ones, and information may trigger energetic processes. Problems arise when the experiences corresponding either to physical or informational events are taken to be equivalent to the events themselves.

We experience physical events that affect our bodies as sensations. The experiential aspect of information is meaning. Sensations, the sum total of which at any one moment constitute the sensory quality of the world, are often referred to as sensory data or sensory information. Experientially, this translates into sensory (nonverbal) meaning—objects and events are experienced as green, loud, painful, hot, bright, and so on. The subjective aspect of verbal and other symbolic information is also meaning. Sensory and symbolic meanings combine into the panorama of a meaningful world as we ordinarily perceive it. When meaning, instead of the physical processes of energy transfer or information transmission, is taken to be causal, when meaning is externalized or reified, magical thinking enters into this picture.

If we assume with the philosophers (e.g., Bunge, 1979) that physical causation (energic events) and psychological determination (informational events) are two of the many forms of determination, all human interactions with the environment and all events internal to them (and, therefore, of necessity, the subjective experience of these interactions and events) may be described in both their naturalistic and magical interpretations in the form of the following classification. It is understood that, although terms like *person* and *environment, within person* and *outside person* are used here, the physical person is not a closed system and that no absolute boundaries may be drawn between a person and the person's environment. *Within* is better defined as the locus of a particular individual's consciousness and *outside* as all other loci, although even this distinction may be deemed objectionable.

A. Energic events producing other energic events.

1. Energic events originating within person producing energic events in the environment.
   a. Science examples: cases of energy transfer between systems, such as kicking a ball or warming another person's hands with one's own.
   b. Magical thinking examples: the human as the source or channel of mysterious energies—"magical touch," miraculous healing, creation or transformation of objects in miraculous ways.
2. Energic events originating outside person producing energic events in person.
   a. Science examples: the person as the locus of physical effects rather than their cause—solar energy, food, mechanical forces.
   b. Magical thinking examples: being the recipient of external healing energies, influences from celestial bodies or those emanating from a voodoo doll that is being stuck with pins, assuming that sensory meaning equals the "virtue" possessed by an object and therefore produces physical effects, as in the "like cures like" principle.
3. Energic events originating within person producing energic events in the same person.
   a. Science examples: life-sustaining physiological processes that, at least for the time being, are not caused directly by environmental stimuli.
   b. Magical thinking examples: self-transformation (e.g., into an animal) by means of magical powers under one's command.

B. Informational events triggering other informational events.

1. Informational events originating within person triggering informational events in the environment.

a. Science examples: communication (information transmission), for example, between two persons.
b. Magical thinking examples: telepathy, or the communication (transmission) of meaning without information transmission.

2. Informational events originating outside person triggering information events in person.
   a. Science examples: communication (information reception).
   b. Magical thinking examples: telepathy (reception); auditory and visual experiences (voices, visions) attributed to supernatural or discarnate entities.
3. Informational events originating within person triggering informational events in the same person.
   a. Science examples: imagery.
   b. Magical thinking examples: precognition, divination and other instances where meaningful cognitive patterns emerge without apparent information input.

C. Energic events producing information events.
   1. Energic events originating within person producing informational events in the environment.
      a. Science examples: body language.
      b. Magical thinking examples: effort or pain in one person causes sympathetic experience in another in the absence of sensory information transmission; clairvoyance.
   2. Energic events originating outside person producing informational events in person.
      a. Science examples: sensory processes (exteroception).
      b. Magical thinking examples: clairvoyance, psychometry, and other instances where meaning derived from sensory or intuitive processes is mistaken for information arriving from a distant source or a proximal source by virtue of its prior association ("contagion," "participation") with a person or other source of energy.
   3. Energic events originating within person producing informational events in the same person.
      a. Science examples: sensory processes (interoception).
      b. Magical thinking examples: clairvoyance regarding one's own body.

D. Informational events triggering energic events.
   1. Informational events originating within person triggering energic events in the environment.
      a. Science examples: verbal control (of another person's behavior), suggestion, psychotherapy.