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Robert W. Rieber

# Freud on Interpretation

## The Ancient Magical Egyptian and Jewish Traditions

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# Freud on Interpretation

## The Ancient Magical Egyptian and Jewish Traditions

With Contributions by David Bakan

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# Preface

This book constitutes an original analysis of Freud and his method of interpretation. It examines the inner workings of his thought processes and the rich mine of knowledge that led him toward his theories and therapies. In the beliefs of ancient Egypt, with its sexuality and ambiguous deities, and ancient Israel, with its biblical accounts of madness and feigned madness, are found surprising sources of inspiration for core Freudian concepts such as free association, dream interpretation, the psychosexual stages, the libido, and the unconscious. Psychoanalysis is seen in its early growth stages, and nurtured by philosophers, scientists, and fearless mind explorers. Here, Freud is boldly synthesizing loads of knowledge in an age when science and superstition were rarely separate. The book consists of the following major themes: (1) Overviews of the pre-Freudian history of psychology in the writings of Herbart, Morel, and Craft-Ebing; (2) explorations of Freud's interest in ancient Egyptian creation myths and a Kabbala, and their influences on his work; (3) discussions of the paradoxes inherent in the interpretation of the mind; (4) a unique history of the origins of the Rorschach test; (5) the consideration of the real meaning behind Freud's self-identification as a determinist; and (6) a list of Freud's library titles on ancient Egypt.

In broad brush strokes, this is the essence of the subject matter of this book. A slow and satisfying insight of this material began to generate in my mind in the 1980s. This version was clearly the outcome of many interests that had to be clarified and connected. It was my friendship and close association with the late David Bakan that led to the writing of this book. David and I spent many, many hours figuring out how to present material in book form before his death. Unfortunately, his death prevented him from editing of his section of the book, which I accomplished some years after he died. When I formally began to put this book together, I was absolutely certain of its ultimate structure. Nevertheless, the work of Eric Fromm, Abram Kardiner, and Gregory Bateson would turn out to be important foundations of much of my work. My personal friendships and associations with these people provided me with the opportunity to gain first-hand information and insights that were necessary to do the job. Many friends and colleagues have given me the benefits of their criticisms of my ideas and early drafts, and in many instances,

have offered helpful suggestions. I have given every criticism that has come my way the most earnest attention, many I accepted and made the appropriate changes. In some instances, I felt that at some points I was misunderstood, and attempted to revise my presentations to lessen the likelihood of similar misunderstandings by others. I wish to thank especially David Forrest for his contribution in this book, which clarifies the real meaning behind Freud's self-determination as a determinist.

New York, NY, USA Robert W. Rieber

# Prologue

It has been said that a rock contains the form that it wants to become, but only a sculptor with a keen eye can discern it. So it is with the mind, the matter which to all appearances is shapeless and which in its function is largely mysterious even with the aid of modern imaging devices; only someone with the requisite wisdom, intuition, and perspicacity can penetrate the mind's labyrinth and in effect lift the lid off the Id. But even with all these estimable attributes, the interpreter can go astray, forging up paths that culminate in cul de sacs or embarking on roads that at first seem to yield promising results but then do not pan out. Some of the routes have become overgrown, some littered with the rusting carcasses of vehicles that died before they could reach their destination.

The principal essays that make up this book all tackle the checkered history of interpretation albeit relying on a variety of approaches. In the first part, we will explore the development of psychoanalysis; it is a history which, like any history, is itself subject to interpretation; if Freud is the father figure of this history, he had many rivals to the throne. What made the business of interpreting the mind such a messy, conflicted business was the problem posed by the nature of the mind itself. Was the mind equivalent to matter or was it something that might be separate from and even transcend matter? Obviously, efforts to answer this question did not begin suddenly in central Europe in the middle of the nineteenth century. Indeed, Freud himself drew upon ancient beliefs and traditions to develop some of his most important therapeutic techniques. In the second part of this book, we will see how both the ancient Egyptian rituals and Jewish mysticism provided the inspiration – and sometimes the impetus – for the way in which Freud went about unraveling the unconsciousness. The third part, written by my late colleague David Bakan, views the subject of interpretation – as a method of unlocking the mind – from a multitude of perspectives, showing us why, for instance, an understanding of how a general thinks of an impending battle and how a physicist thinks of entropy in a closed and open system can shed light on the workings of the mind. Then we will take a peek into the private libraries of some of the most important interpreters of the mind to see what their bookplates – yes, their bookplates – have to say about their own minds. Many of these plates, by virtue of their graphics and their symbols, reveal a

good deal about the personalities of these intellectual elites, especially given the fact that nineteenth-century bookplates evolved to an extent from a popular pastime called shadow games. But then, what is the enterprise of mind interpretation if not a shadow game? Freud showed us that in dreams, there are no errors or discrepancies; everything matters, everything has meaning. What is true for dreams is true no less for bookplates.

## The Origins and Groundwork of Psychoanalysis

By the mid-1880s, the term *unconscious*, which was previously associated with unawareness, took on a new meaning – it referred to a part of the mind beyond conscious awareness. But something so amorphous eluded attempts to pin it down in scientific terms. Undaunted, a number of scholars decided to try their hand at it, beginning with the nineteenth-century German philosopher Johann Friedrich Herbart who argued that it was possible to measure mental activity – even unconscious activity. He went further, maintaining that it was possible to establish a scientific psychology that could be formulated in quantitative mathematical terms. While his attempt did not succeed, his theories exerted considerable influence over psychoanalytic thought for decades to come. If Herbart's theories have not received the attention they deserve, his conviction that mental states could be quantified has been borne out; contemporary psychological research would not be possible without the use of statistics and other mathematical tools. Needless to say, this quantitative approach was not one that Freud followed in his quest to comprehend the unconscious. That the unconscious might be a repository for all sorts of repressed sexual desires and impulses, while forming the basis for many of his seminal theories, was not quite as unprecedented as people often assume. In fact, his focus on sexuality occurred during a period when readers were grabbing up copies of Krafft–Ebing's *Psychopathia Sexualis* (1886/1969), a no-holds-barred examination of sexual perversities. They were also devouring the novels of Viennese writers who made liberal use of sexual themes in their plots. The Bohemian society of the Austro-Hungarian Empire was by no means made up of prudes.

Medical practitioners of the period were charting a similar path that these writers were following. Like the novelists, the doctors looked for the causes of disease in the brutal industrialized urban environment in which their patients lived and labored. Several groundbreaking anatomical and physiological discoveries allowed medical practitioners to believe that sickness could be not only understood but also controlled. Moreover, they believed that inheritable defects, infections, and tumors were causes of mental illness and vice versa, and that by diagnosing such manifestations of "sickness" as morbid vanity, mystical tendencies, religious enthusiasm, or even excessive originality, it was possible to identify signs of degeneration. Under this kind of sweeping categorization, even geniuses were suspect – they were seen as degenerate, emotional, and oversensitive (in contrast to the healthy, aggressive, insensitive dolt). The genius was "a sublime fool" in the words of Benedict Morel.

Many conservative medical writers seized upon this broad definition to label everyone and everything they did not approve of as "sick," sparing them the necessity of taking into account the social, political, or environmental factors that might be implicated. Therapists of the day, not surprisingly, took their cue from such notions and resorted to techniques such as electric shocks and hypnosis to treat their patients.

The concept of the unconscious, advanced in the work of Joseph Brueur and Freud, notably in *Studies in Hysteria* (Breuer & Freud, 1895/1911), did not depart much from this conservative tradition. The unconscious was a Pandora's box of traumatic memories, taboos, sexual desires, and shameful feelings that the individual refused to reveal because of fear of humiliation or condemnation. Freud, however, turned his attention to his patients' sexual history and fantasies, with a view to understand how childhood traumas, buried in the unconscious, could lead to neurosis in adulthood. Tragedy, Freud believed, was inherent in the human condition, the consequence of an irresolvable conflict between man's instinctual sexual nature and demands of civilization. If Freud had any answer (he had no solution), it was to adopt an attitude of what might be termed enlightened resignation.

Of Freud's close associates, we will consider two in particular: Alfred Adler and Karl Jung, both of whom went on to break with the master. Adler was a much more accessible – and popular – figure in Vienna than Freud. He also became known for his interest in children's mental health (why wait until they became adults to figure out what had happened to them in childhood?) and even went so far as to establish child guidance clinics within the Vienna school system. He eventually came to regard the desire for self-esteem as the basic motivational principle in all human behavior, rejecting the theory of infantile sexuality and the related theory of sexual repression in adolescence, views that put him at odds with that of Freud's. Freud never forgave Adler for his defection. Jung took issue with Freud on other grounds. For Jung, puberty was not a period of latency, as Freud maintained, but rather the time when sexuality began. Jung also disputed Freud's libido theory; for one thing, he contended, it failed to explain the symptoms and pathology of dementia praecox (or schizophrenia). For another, he argued, the meaning of the concept should either be broadened or scrapped in favor of the concept of psychic energy. Neither did he accept Freud's belief that neurosis results from the conflict between ego instincts and sexual instincts. Rather, Jung said, the conflict was the result of the failure of individual's emotions to develop in pace with his or her physical and chronological development. Jung was the first psychoanalyst to recognize that people did not just repress hate, lust, and shameful feelings, they were equally capable of repressing positive and constructive aspects of their personality.

## Psychoanalysis Comes to America

Even as Freud was developing his theory of libido and gathering an ardent, if often feuding, circle of disciples in Vienna, Adolf Meyer was busy developing his own theory of psychobiological reactions in the USA. Under the influence of Charles

Sanders Peirce, William James, and John Dewey, Meyer challenged the idea that mental processes could be separated into affect and ideas, and rejected the tendency of his time to model theories of human behavior, as Freud and other psychologists had attempted to do, based on studies of the nerve cell. In the pragmatic traditions of the New World, Meyer eschewed the search for the Absolute – Kant's *ding an sieh,* or thing-in-itself – that haunted European psychologists. It was a mistake to distrust the patient's own experience, Meyer contended, and there was little chance of diagnosing, much less treating a patient, if the therapist was fixated on reducing all phenomena to the "ultimate reality." The patient's illness and cure should be based on observation and experimentation, an approach that Meyer's successors – at least in the USA – have continued to follow to this day.

## From the Pharaohs to Freud: Psychoanalysis and the Magical Egyptian Tradition

Consider the fact that of all the art forms, Freud's favorite was sculpture. Just as an astute observer can detect the sculpture that inheres in a jagged rock so, too, Freud was capable of perceiving in a patient's words, dreams, fears, fantasies, impulses, and hidden desires the contours and topography of the unconscious mind. It turns out that rocks – literal as well as metaphorical – are critical to an understanding of Freud's quest to unravel the unconscious. The rocks I refer to were those employed to construct the pyramids, obelisks, and statues that have been bequeathed to us as a legacy of ancient Egypt. If there ever was a civilization obsessed by death – or rather life after death – it was ancient Egypt. What is not well known even to students of the history of psychoanalysis is that Freud was strongly influenced by ancient Egypt, its cosmic mythology, its rituals, and its belief system. He liked to wander the ancient Egyptian galleries of museums and amassed an impressive collection of Egyptian antiquities. His library contained many books devoted to ancient Egypt (see Appendix A in Chap. 4). It might strike some readers as outlandish to trace such seminal Freudian concepts as his delineation of the oral, anal, and phallic phases of sexuality, penis envy, and incest to a culture so remote from his (and our) own. Yet the evidence suggests that ancient Egyptian beliefs shaped his psychoanalytical theories. Freud is inevitably associated with the Oedipal myth, but few people are aware that he was also inspired by such incestuous Egyptian deities as Shu (god of dryness) and Tefnut (goddess of humidity). In the concepts of Ba, defined variously as the soul or self, and of Ka, a spirit that served as its doppelganger in life and as a guardian of the individual in the afterworld, Freud found a fertile source for his own theories of personality. It is also possible to draw an illuminating connection between the Egyptian concept of chaos and Freud's concept of the unconscious; the Egyptians called chaos Nun and regarded it as an undifferentiated mass that contained within it the seeds of all life. (Think of the rock and the form that the sculptor will create from it.) Even with the creation of the universe, chaos did not vanish, but rather turned into a refuge for dark forces that could reassert themselves

in the universe whenever circumstances allowed. Nun makes for a very convenient analog to the unconscious.

A case can even be made that the therapeutic process itself, at least as conceived by Freud, owes at least some debt to third millennium Egypt. In Exodus, for instance, Moses refers to Egyptian priests as "wise men, sorcerers, and magicians" – characterizations, fairly or not, that have been attributed to analysts. The technique of free association, while introduced and refined by Freud, might well have been inspired by the ancient Egyptians for whom words were imbued with great power and names were extensions of identity. A person's name was thought to hold magical significance; it was an integral part of his identity, a source of power – and a potential route into his innermost being, a route followed by Freud and his disciples several millennia later in their exploration of the unconscious.

If anything, Freud's fascination with Jewish history and mysticism was even more pronounced. Although evidence is insufficient to support the Biblical story of the Jewish sojourn in Egypt, the literal truth (as opposed to a larger, mythical, or mystical truth) is not the issue. In any case, the findings of archeologists suggest that there was considerable cultural and economic interchange between the ancient Jews and Egyptians. The two peoples also shared some key concepts. For instance, the Hebrew word for madness – *meshugga* – is derived from the Egyptian word referring to imbecility or stupefaction. The etymological affinity of the words not only indicates a shared conception of insanity, but also the recognition that insanity could be feigned. The recognition of different states of mind represents a significant cultural leap; the realization that some states can be mimicked for deceptive purposes is more revolutionary (or evolutionary) still. (The similarities only go so far, though; the fixation on the afterworld of the ancient Egyptians was not one shared by the ancient Israelis for whom the afterworld was, more or less, an afterthought, far less important than the way life was lived on earth.) The conflation of the two cultures is most dramatically demonstrated in the person of Moses, the subject of one of Freud's most major works, *Moses and Monotheism*. For Freud, Moses was every bit of an Egyptian as he was a Jew, perhaps more so, and several critics contended that by focusing on Moses' purported Egyptian roots, Freud was in effect hijacking him from the Jews. There is some speculation that Freud was anxious to cover up the Jewish origins of psychoanalysis as a way of protecting the nascent discipline from being mocked or derided by anti-Semites whose influence at the time was not to be underestimated.

Freud was also drawn to the Kabbala, the monumental mystical exegesis, predicated on the belief that every word, letter, and number found in the Old Testament has a secret or hidden meaning; that is to say, the Bible also constitutes a kind of code. The same technique used to explicate the Kabbala – what one scholar called "skipping and jumping" – offers an approach that comes very close to that of free association, another experiment of Freud's intended to find a route inward – into the unconscious and chaos.

For all the tools that Freud might have borrowed from these ancient civilizations to construct his own theories and employ in his analysis, Freud was playing a dangerous game, according to David Bakan, a leading scholar of Jewish mysticism and

psychoanalysis. To penetrate the unconscious, uncover its secrets, and expose to the conscious mind a person's repressed sexual longings and fantasies, Bakan argued, the analyst was required to gain a mastery over the dark forces he would find there. That means that the analyst must make an alliance of convenience with these forces – a pact with the Devil, in other words. Historians have been debating who got the better of the bargain ever since.

## On Interpretation of the Mind

In Bakan's view, interpretation is "the process whereby we make our way from what is given to us to what we take to be so." Meaning, he believes, can be discovered by the process of interpretation. That which is to be interpreted is not "without form and void." This definition applies to dreams, too. Yet the meaning of the dream is not just what it says. The meaning is not in the manifest content of the dream, even though the dream characteristically comes in the form of a "story." Rather, the dream is a "profound expression of the mind of the dreamer; that it arises from wishes which have been otherwise unexpressed and are seeking expression…" The unconscious points not only to something – in the mind, but "also to the existence of a huge realm of being which we do not know about (e.g., black holes and death.)"

Interpreting riddles is not just a job for an analyst. "The scientific enterprise is better appreciated as puzzle solving or interpreting riddles," Bakan points out, taking issue with the British empirical argument that there "is nothing in the intellect except that which comes through the senses" – an approach he believes that led us into a form of passivity.

The interpretative enterprise, Bakan says, entails three tasks – those of the detective, inventor, and warrior. The detective interprets various clues to ascertain the detailed nature of the historical episode which is intrinsically unknowable directly; the inventor interprets the natural order in identifying potentialities and constraints for the design of some object which has not even existed in the world; and the warrior seeks to detect intentions, will, and resources of opponents, allies, superiors, and subordinates, identifying his own potentialities and constraints as preparation for defeating his enemy. All three roles require intellectual effort to overcome resistance in pursuing the path of interpretation.

As Bakan says, we find ourselves inside a context created by a riddle maker. The role of the interpreter is to step outside the context to solve the riddle. But how can this trick be done? The riddle maker uses codes and obscure languages to conceal his meaning in much the way that dreams are encoded to conceal their meaning. Hieroglyphics, Bakan says, offered just this kind of riddle, at least until the Rosetta Stone allowed linguists to make sense of them. The riddle posed by hieroglyphics revolved around the question as to whether one can crack a language or code without something that functions like a dictionary (the answer is no). "The various examples of cracking of hieroglyphics and the like all attest to the possibility of being able to determine the third world features, such as free information, from

bound information even when the language is not available." That is, it is possible for intelligent human beings facing bound information – that is bound in the tissue of the brain or the movements of the mouth, tongue, and lungs or in electrical impulses in the telephone – as opposed to when it is free as it exists in the mind – to detect both the code and the information in an encoded form.

Language is primarily a third world phenomenon, Bakan contends. The concept of the third world originated with the philosopher Karl Popper (1972) who proposed three worlds – first, the world of physical objects or physical states; second, the world of states of consciousness or mental states or behavioral dispositions; and third, the world of objective contents of thought, especially of scientific and poetic thoughts and works of art. It is in the third world that Beethoven's Ninth Symphony is found (although it can be manifested in the first world when, for instance, it is performed by a symphony orchestra) and it is in the third world that Hamlet is to be found.

This leads to a discussion of the third world of creativity as exemplified in fiction, why we can talk about the motivation for Hamlet's hesitancy, even though those motives are not specified by Shakespeare. In spite of a historical Hamlet who presumably inspired the playwright, there is no reason to think that Hamlet is anything else but a fictional creation. Nonetheless, it is by no means an empty or wasted enterprise to consider his state of mind and why he acts impulsively at one point and dithers at another. Freud, for example, believed that Hamlet had an Oedipal complex. In other words, Freud was interpreting Hamlet's unconsciousness in spite of the fact that Shakespeare's Hamlet is purely imaginary.

Bakan segues to a discussion about the way in which the behavior of a collective – a group or society – is not "derivable from the facts associated with individuals composing the group." He cites Durkheim ("collective tendencies have an existence of their own"), but he might as well be referring to the behavior of markets (which cannot be deduced from the decision of any given investor). There are certain phenomena associated with aggregates that are not associated with each member of the aggregate.

Bakan next turns to the theme of possibility in the context of warfare, pointing out that no general can successfully carry out a military operation without taking into account the possibilities (or scenarios) that may ensue. The general needs to figure out the potential actions the enemy may take as well as the constraints placed on the enemy. By the same token, he also needs to consider his own force's potential strengths and weaknesses. "In no way can the warrior afford the luxury of a relentless physicalist position, the position that allows that there is no reality except material reality." That is to say, the warrior must carry out his tactical considerations in the third world.

Bakan turns his attention to abstractions – the forms that exist irrespective of human minds, even though our minds apprehend them. Take the circle. The ratio of the circumference to the diameter of a circle – pi – predated human life on earth. This leads him to the consideration of two principal questions: does the circle's character exist independently of the existence of human beings and is there some a priori correspondence between human mentation and the world of mathematical reality?

Bakan doubles back to Freud again (not that Freud is ever far from his thoughts), pointing out that for Freud, the dream is to be understood in terms of processes involved in its formation – what Freud called "dream work." "The whole scientific enterprise, insofar as the scientific enterprise seeks to identify causes, is an enterprise which would interpret what is given in terms of the processes involved in the creation of the given." And where better can this process be put to the test than the Bible? "What we find in Freud is a very special kind of recognition, even if it may have been an unconscious recognition, that the modes, developed over history for the interpretation of the Bible, could be usefully transferred to the interpretation of human experience and behavior." He notes that the methods of Biblical exegesis have always been in a certain sense psychological. Just as every letter in the Bible is critically important – even errors that might have crept into the text are meaningful – so, too, every element of the dream is crucial, even something that might at first blush appear trivial. The history of the Bible presents two phenomena that have reinforced each other – the inordinate care with which the Bible has been copied over the centuries and the inordinately huge body of interpretation associated with the text. Bakan describes four types of interpretation – the literal meaning, the implied meaning, the homiletical, and the secret. The latter two forms were considered the most dangerous. The *Gematria*, for instance, is based on the assumption that the text is written in a code which, if cracked, will reveal the hidden meaning. (The *Gematria* is defined as Hebraic numerology.) In the Hellenistic world, the *Gematria* was often used by dream interpreters. The holy names Abraxas and Mithras, because the Greek assigned numerical value to each letter, could be translated as 365, the number of days in the year. The given is the word in the text, but the assumption is that something else which is the case has generated the code, and the code allows us to operate backward – from the given back to that which is the case. This method of interpretation is especially profitable when it comes to the Kabbala, the mystical Jewish text which offers an account of creation. According to the Jewish mystical tradition, the Torah existed before the creation of the universe and, indeed, was used as a kind of blueprint by God in its creation. In other words, the Torah is equated with an abstract form like the circle, predating the existence of human beings. "One of the deepest characteristics of the mystical tradition throughout the ages is it allowed a conception of the universe which is in some way something like a human being in that it conceives of the world as both *living* and *mentating*."

Bakan tackles Haeckelianism in the second part of his paper. (The German biologist and physician Ernst Haeckel developed the controversial recapitulation theory that "ontogeny recapitulates phylogeny," claiming that an individual organism's biological development summarized that of its species.) Haeckelianism, Bakan writes, does not confer any reality on knowledge per se. "Reality is understood as only the material *in* it and the movement of material." This view holds that knowledge of the world can be obtained only on the basis of "a totally relaxed materialism, materialism which is so relaxed that it is no longer materialism." The roots of this notion can be traced back to the Greek philosopher Democritus – that all things are composed of and explicable in terms of very small units of matter or atoms which occupy and

interact within space. It was a doctrine that was taken up again by Gassendi and subsequently by Thomas Hobbes and Decartes and by the eighteenth-century writer La Mettrie. La Mettrie's famous book *"L'Homme machine*" says it all.

This doctrine, Bakan writes, exerted a great influence on the development of chemistry – specifically the explanation of the phenomena associated with heat where the molecule was taken as the basic unit of matter. (The development of molecular theory of heat begins in 1738 with Daniel Bernoulli who demonstrated the application of Boyle's law – the product of pressure and volume of a gas remains constant under a condition of constant temperature.) What Bakan calls "the methodological masterstroke" was the focusing of attention to the aggregate of molecules' movement in space – that is, applying the same technique that the warrior needs in waging battle: the consideration of possibilities. How molecules in an aggregate will behave allowed researchers to consider energy in the context of open and closed systems. The concept of entropy derives from the observation that heat can only be used to obtain work when there is a difference between temperatures in two parts of the system if it is closed. If it becomes too hot, no work is obtained. The same holds true if it is too cold. There is no energy in the system: no energy no work. This is a condition which we would say is high in entropy. This is where statistics comes in. Statistics, Bakan writes, "entails the study of aggregates where the aggregates represent events that actually have taken place, or conditions that actually have existed." On the contrary, probability deals with aggregates that exist in another kind of actuality – which puts us in effect back in the third world.

The third world is characterized by two important features – objectivity and thinkability. By objectivity, Popper means that like the circle, human existence is not required for its existence. However, in Bakan's embellishment, whatever form the objective takes, it must be capable of being apprehended by human beings. If we cannot think about it, then it does not belong in the third world. The elaboration of these concepts that Bakan presents may prove difficult for readers who lack a background in physics, logic, and communication theory. Let it be said that by the time that Bakan has taken us for a wild ride through terrain mapped by Leo Szilard, flirted with Maxwell's demon, considered the implications of a perpetual motion machine, informed us why the Second Law of Thermodynamics is not as threatened by entropy as we might expect, distinguished between messages and message sets, and delineated the parallels between entropy and information, Haeckel's relaxed materialism does not come out in very good shape.

Taking a deep breath, Bakan circles back to a consideration of the process of interpretation, which is where he began. Interpretation, he observes, is a psychological process, a process which resides in Popper's second world – that is, a place characterized by "states of consciousness, or mental states, or perhaps dispositions to act," in Popper's words. Interpretation is dead serious business, Bakan reminds us; it is key to survival. All social, political, and economic interactions can only be understood (and misunderstood) by interpretation. For people who believe that the Bible should only be read literally, Bakan points out, interpretation was shunned, a bright line drawn between the first and second worlds. In some circles, interpretation has certainly gotten a bad name. But not for Bakan: "Let us say," he writes,

"that *interpretation is that conscious process whereby one infers the determinative features of the third world of the actual from the examination of the actual*" – that is to say, the first "actual" world. Put another way, Bakan says, interpretation is the opposite of generation. The aim of the process of interpretation is to rediscover the processes involved in generation.

Never one to be daunted by tackling any subject if it has a bearing on the subject of interpretation – after all, this paper has room for Sun Tzu, Newton, Mao, Darwin, La Place, and Descartes – Bakan reaches into the world of economics (a world in dire need of interpretation) to further his argument, even calling upon the great British economist John Maynard Keynes in support of his position. Going further afield, Bakan devotes the latter part of his paper to the universe, taking as a starting point the ancient maxim of the Gnostics: What is above is below. Or in Bakan's construction, "Let us allow that which we have been maintaining, that human being is a being which expresses some of the most important characteristics of the universe at large; and what we might learn about the nature of being human might be more general than human being." The universe, he contends, is a mentational universe, as suggested by mathematics (whose existence is not contingent on human existence) but not limited to mathematics. "Human mentation is then a realization of the abiding mentational character of the universe." With that declaration, Bakan takes his readers into the realm of the metaphysical, although he is obliged to admit that the assumption "that *whatever* exists is thinkable" – a feature of Popper's third world – has not always been received with "universal assent in the history of thought." The universe, he says, is not only mentational, but is also vital (though he takes pains to distinguish vital from animalist). "What Aristotle called final cause is inextricably interwoven in all phenomena of mentation, if not both mentation and vitality." Bakan casts a skeptical eye at Darwin, eschewing the notion of blind chance as the sole explanation of evolution; indeed, he maintains that by leading to a more adaptive population, evolution has led to the development of the human capacity to learn. "Darwinism simply fails with respect to deepening our understanding of the nature of human mentation in both its existence and its complexity," he argues. Even as the so-called experts in science "piously repeat their denials of final causality in connection with human behavior, the final causes play out their roles as the major determinants of what transpires in the world." Considerable energy and resources are devoted to changing or adjusting the goals and values of people. Economics requires an understanding of final causes; the price associated with any commercial transaction is determined by final causes operating in both buyer and seller. Similarly, no system of justice could function without understanding of final causes (read motives). Otherwise no legal distinction between first-degree murder and manslaughter would be possible. Power itself, Bakan states, is a final cause. Yet at the same time, he acknowledges that such phenomena as biological or physical laws, much less economic laws, cannot be said to have existed before organic life – and in the case of economics, human life – emerged on earth. Mathematics would seem to be different; the relationship between a circle's circumference and diameter as embodied in pi needs no human understanding or existence to be true. Creation is the key; the creation of human life was made possible only by

creation of the universe and the subsequent creation of organic life; yet humans are capable of creating something novel (e.g., Hamlet, Beethoven's Ninth, and an electric motor). Creativity in the universe led inevitably to the creation of creative human beings. The universe is at once the receiver from actuality – that is, it is constantly in flux due to the phenomena it was responsible for setting in motion – and also the creator of that actuality. Human beings are the agents of actuality while also creations of the actuality of the universe. So, is there room for God in this scheme? Bakan brings in Freud again for a final bow. "Freud was sensitive to the play in which human beings draw from their own substance in their notions and images of God." That substance is, of course, their unconscious, which both feeds the third world and is the repository for the kindling that keeps the ideas in the third world burning. To interpret the mind then is to interpret the whole universe.

## The Bookplates and the Rorschach Test

As a sign of ownership, bookplates can be traced back to the inscriptions in books in Europe in the Middle Ages at a time when libraries were becoming more commonplace. The earliest known examples of printed bookplates were German and date from the fifteenth century. As they became more fashionable and more lavishly designed, they spread to other countries. Bookplates even attracted important artists; Albrecht Durer, for instance, engraved six such plates in the early sixteenth century. The development of bookplates was also influenced by the so-called shadow books that were popular in the eighteenth century and early nineteenth century. These shadow books were composed of silhouettes. People could cut out their own shapes and paste them in. Flipping through the pages of these books became a kind of parlor game. Although the origin of the famous Rorschach inkblot tests has been disputed, there is reason to believe that they might have evolved from shadow books; what began as an entertainment was transformed into a technique used by generations of therapists and analysts to assess their subjects' perceptions and states of mind. In the inkblot tests, what mattered more than the content were the specific details that evoked a response in the subjects and the *determinants* – the elements that triggered the response. Bookplates shared some of these characteristics, sometimes revealing more about the personalities of the owners of the books than the owners might have realized or preferred. After all, bookplates were not only decorative, but could also serve as a means of self-promotion. Embellished with heraldic symbols and mythical imagery, bookplates could proclaim to the browser that the book's owner was someone of substance. The bookplate can reveal an individual's interests, temperament, accomplishments, and ambitions. Often overlooked, historical bookplates can offer some unexpected insight about the personalities of some of the most interesting figures of the seventeenth through the twentieth centuries – psychoanalysts and philosophers no less than politicians and generals. In the final part of our book, we will examine a representative sampling of some of these bookplates and see what they can tell us about the owners of the books which they adorned.

Consider, for example, the bookplate Freud used for books in his private library. It is a reproduction of the embossed image on the famous bronze medallion created by Karl Maria Schwerdtner and presented to Freud on the occasion of his fiftieth birthday. In addition to Freud's portrait, it also depicts Oedipus encountering the sphinx along with a quotation from Sophocles' *Oedipus Tyrannus*: "who divined the famed riddle and was a man most mighty." No doubt Freud saw himself as the diviner, the man who by solving the riddle – interpreting the unconscious – became a man most mighty. And who is to say he was mistaken?

## Freud and Determinism

In a kind of coda to the book, we return to Freud, in this case to ask why if Freud was a determinist, as he insisted he was, it makes any sense to think about the interpretation of the mind at all. If our actions are mechanistically determined, if there is no free will, then why bother with trying to figure out someone's motives or intentions – his "first causes." But as David Bakan points out in this brief and compelling essay, what Freud means by determinism and what such philosophers as Democritus and La Place and behaviorists mean by determinism are two different things. "The word 'determinism' has characteristically meant materialistic determinism," he notes. But that is not what Freud was referring to when he used the term. The distinction can be found in the definition of normal. Under ordinary circumstances, Freud believed, an individual does have volitional control. But someone who suffers from neurosis, who is not able to "identify unconscious final causes" – that is, his motives or intentions – lacks that volitional control. In that respect, it can be said that his or her conduct is deterministic. If Freud saw no possibility of distinguishing neurosis from normality, Bakan says, there would be no purpose in psychoanalysis. "Freud is not a determinist in the sense that he would deny the normal existence of voluntary control," Bakan writes. "He is rather the physician who takes on the task of finding a remedy when the person loses that normal volitional control." This leads Bakan to undertake a critique of behaviorism in both its strong and weak forms. The strong form says that mentation does not exist; the weak form concedes its existence but asserts that it cannot be scientifically examined. In both cases, mentation cannot have any determinative influence on conduct. Mentation becomes a shadowy presence with no more substance than the cutouts in a shadow book. It goes without saying that Bakan believes that this is a false argument. Yes, mental and physical phenomena are different, but there is no doubt that they are interconnected. "Becoming aware, say, of having suffered financial loss may be psychological, and blood pressure may be physical," he observes, but a direct connection can frequently be drawn between the former and the latter. Once again Bakan goes where most academics fear to tread by bringing up a subject generally eschewed by academics and analysts alike: metaphysics. He is prepared to address metaphysics even while acknowledging that the "term has been used in the culture of psychologists as a pejorative, equivalent to words like 'nonsense' or 'garbage' or the word

that we use for the excrement of male bovines." In Bakan's hands, metaphysics recovers its privileged status. Indeed, if Bakan is right, metaphysics is necessary if we are to answer the great psychoanalytic questions, many of which come down to considering whether or not mentation exists. If it exists, then we do not have to get hung up on the question of determinism. Readers can anticipate where Bakan is going to come out on this argument, but it is worth reading this essay to find out how he gets there.

# Contents

# Chapter 1
# The Origins and Groundwork of Psychoanalysis

The way in which the mind is interpreted at any given time cannot be studied in a vacuum. If one wishes to gain an understanding of the theories of mind put forward by Aristotle, Plato, and Democritus, for instance, it helps to know something about the Athenian political and cultural landscape in which those philosophers flourished. Moreover, it is also not possible to view the variety of approaches to interpretation without taking into account other historical trends, especially in science. In periods characterized by groundbreaking scientific advances, it is not surprising to find a renewed interest in psychological interpretation. The invention of telescopes and microscopes allowed scientists to see worlds that had hitherto been unknown to them. So they naturally assumed that the mysteries of the mind could be similarly opened up. In some epochs, the theories of the mind based on physiological models enjoyed favor, while in others more attention was given to the patient's subjective experience and observations. Cultural and educational traditions also exerted an influence on how the mind is viewed and interpreted; thus, it was inevitable that a European import like psychoanalysis would undergo a dramatic transformation once it made the crossing to America. All that said, it is still possible to ask why the whole idea of investigating the mind – and why such an enterprise was even considered worth pursuing – took hold in one place and not in another. Specifically, why Germany in the nineteenth century?

Begels' personification of society – his view of the state as a single organism, like a person – is reflected by Freud and Jung in their notions of the collective unconscious, of group psychology, and of the archaic ego, the inherited deposit of racial history. His dialectic thesis, antithesis, and synthesis also influenced Freud, especially in *his* preoccupation with polarities of opposites, such as male and female, love and hate, life and death, and passive and aggressive.

During the early nineteenth century, the unconscious part of the mind received increasing attention, and by the mid-1880s, the term *unconscious,* which originally had meant simply to be unaware of something, had come to denote a separate part of the mind existing outside of awareness. However, this meaning still lacked respectable scientific status. This was less true of psychology itself.

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But Immanuel Kant's criticism of psychology still held great weight. Kant had denied that psychology could ever become an exact natural science, for an exact science depends on accurate measurements that are impossible to achieve in dealing with the internal phenomena of mental activity. There is no weight, size, or volume to thought, Kant asserted; its only dimension is duration, which is inadequate by itself as a unit of measurement.

The nineteenth-century German philosopher Johann Friedrich Herbart attempted to answer Kant's objection by adding the dimension of force or intensity. Ideas have force, as well as duration, and conflict with each other. On the basis of these two dimensions, he argued, mental activity can be measured. In this way, Herbart sought to establish a scientific psychology that could be formulated in quantitative mathematical terms. This ideal was never completely realized, but quantitative concepts played an increasingly important part henceforth in general psychology as well as in psychoanalytic thought. The same search goes on today, a time when statistics and other mathematical tools are important in psychological research.

Herbart elaborated Kant's unknowable reality by assuming it to be made up of separate entities constantly disturbing and reacting against each other. The soul of man, in Herbart's view, is such an entity: The ideas of conscious and unconscious life are the reactions of a person's unknowable, real soul to the disturbing impingement of other entities, such as other unknowable souls. Ideas, here, mean all mental activity, including sensations, impulses, feelings, images, and words. These ideas react against or support each other, and their behavior determines the content of consciousness. Imagine consciousness to be a beam of light shining through a window; the turbulent motes of dust seen rising up, bumping against each other, falling down, and disappearing below this beam of light are the ideas struggling with each other for the threshold of attention. When an idea is overcome by an opposing idea, Herbart says, it is pushed back or repressed below the light of conscious attention. He thus introduced the term *repression* in the sense that Freud later used it, to refer to this forceful pushing back of something into the unconscious. He also stated that when something is repressed, it regresses or returns to a more primitive form; for example, a word becomes an image, an image becomes a feeling.

Herbart also described a notion of an apperception mass, namely, a compact, organized, unconscious group of ideas present in the mind that determines whether new ideas will be retained or not. Jung later elaborated a similar notion, to which he applied the term *psychic complex* and which, as reflected today in the terms *inferiority complex*, so to speak, draws ideas that contain the feeling of inferiority, or the compensation for it, and excludes ideas that would conflict with these feelings.

Freud used Herbart's popular textbook in his own studies at the university and was undoubtedly influenced considerably by him. Herbart also had an influence on American education, and a National Herbart Society honoring him was formed here in the USA.

A Herbart section of the National Education Association was formed, and his authoritarian pedagogical German model of educational method had profound influence throughout America until challenged by John Dewey, who laid the foundations for the interactional approach in education and the interpersonal approach in

psychiatry and psychoanalysis. It was popular and traditional by that time to eulogize nature and the natural (as "unconscious") in man. A famous study by the German philosopher Hartmann, *The Philosophy of the Unconscious*, appeared in 1869 and was widely translated in many different countries and reappeared in many editions. It described the action of unconscious forces manifested in feelings, instincts, personality changes, historical events and processes, religion, art, language, and literature in much the same way as later described by popular psychoanalytic writers.

Sigmund Freud's voice was well received in the book he did with Breuer in 1895, *Studies in Hysteria* (Breuer and Freud, 1895/1911), but was dismissed as he became preoccupied with the so-called polymorphous, perverse infantile sexuality and its role in later life. However, contrary to his posture, he was not a lonely, solitary truth-sayer unfairly discriminated against in a hypocritical, puritanical, conventional world. In Germany and in Eastern Europe in the last two decades of the nineteenth century, there was a preoccupation with the dark side of sexuality in the work of many writers. The extremely popular and widely read book on sexual perversions by Krafft-Ebing, *Psychopathia Sexualis* (1886/1969), is only the best known of these; it is still being reprinted.

In Ukraine, from whence hundreds of people moved to Vienna, there was a group of realist writers led by Stanislaw Przybyszewski, who treated sexual themes in a bold way and preached that every individual is an absolute law unto him- or herself, a direct inheritance from Rousseau, of course. (Freud's notion of the primal father reflects this same idea.) Sexual preoccupations pervaded the sophisticated literary and Bohemian society of the Austro-Hungarian empire in which Freud grew up. In Vienna during his early professional career, there were three principal literary personalities: Hermann Bahr, Hugo von Hofmannsthal, and Arthur Schnitzler. Bahr was a pronounced atheist and realist. Hofmannsthal was intensely fascinated by disease and mental illness, which gave his work a morbid quality. Schnitzler was a brilliant analyst of character, preoccupied with mental and emotional aberration. His writings were pervaded with skepticism, nihilism, and lust for pleasurable sensations. These writers faithfully reflected the *Weltanschauung* of cultivated Viennese society. They had many imitators. Freud's work fits into this context clearly.

Medical practitioners joined realist writers such as Emile Zola in France and Charles Dickens in England in this concern over the degradation and deterioration of the quality of human living consequent to the harsh and rigid industrial urban development. They were also constantly on guard against losing the ground they had won for scientific authority over the authority of superstition and religion, and they celebrated their anatomical and physiological discoveries frequently in popular literature. By and large, the medical profession still enthusiastically believed that these discoveries pointed the way to eventual command over sickness. This accounts for the emphasis placed on physical factors in disease and for the rather considerable weight given in medical opinion to the view of disease as the result of weakness or defect in a person's physical constitution. Mental illness was thought to be caused by physical factors such as inherited constitutional defects, infections, and tumors, although some recognition was also given to social, psychological, and other factors as contributing causes.

The wide popularization of these medical theories explains in part the gloomy preoccupation with sickness in the closing decades of the nineteenth century. Physical illness in many respects came to represent a person's human situation and to substitute in popular thought for moral weakness. Popular presses rapidly sold out works on depravity and perversion. Krafft-Ebing's *Psychopathia Sexualis* (1886/1909) was a bestseller for decades. Freud's case histories are superior examples of this same approach. Investigators of this period coined many new words: All the terms now used to designate the *phobias* (hemato-, agora-, and claustra-) and the *manias* (hypo-, hyper-, klepto-, and eroto-) first came into use at this time, as did the terms *paranoia*, *sadism*, and *masochism*, which were coined by Krafft-Ebing. In other words, much of the language of modern psychiatry and psychoanalysis began during this period and in this medical context.

Included among the stigmata or signs of degeneration were the loss of moral sense, excessive originality, morbid vanity, mystical tendencies, religious enthusiasm, and revolutionary ideas. Evidently, only a hardworking, hard-headed type of middle class person could qualify as healthy here. The causes of degeneration were variously described: Climate, industry, social and political upheavals, large cities, and alcohol all come in for a share of the blame. The treatment recommended was hypnosis, autosuggestion, changes in diet and travel, hot baths, narcotics, rest, work, and lemonade. For the worst cases, sterilization was recommended. Some investigators also merely recommended amputation of the clitoris for nervous women. There was some real basis for castration anxiety with one's physician in those days!

The studies of degeneration were particularly concerned with the genius. In the 1850s, Benedict Morel wrote that the genius is a neurotic, a sublime fool. Hence, such a weakness in itself was conventionally given a certain prestige as a mark of artistic sensitivity or creative potential. This led to a kind of conventional splitting of the human personality into a physically degenerate, emotional, oversensitive soul, separated from a physically healthy, insensitive, aggressive one. Sickness itself thus became both a sign of genius and a mark of destiny, evidence of the delicate superiority of the poet over the physically vigorous and strong but morally inferior businesses and industrialists.

Ironically, then, the discoveries of anatomical and physiological research that had seemed in the early nineteenth century to promise the conquest of human illness came into support of a general escapist and self-indulgent tendency in the closing decades of the century. Many conservative medical writers contributed to this development by their tendency to call everyone and everything of which they did not approve as "sick" – a useful label for evading political and social choices.

Psychological theory was strongly influenced by the views on the nature and cause of sickness advanced by Morel. In his *Traite des Degenerescences Physiques, Intellectuelles et Morales de L'Espece Humaine* (1853), Morel attributed what he called degenerations in the human species to the following causes: (a) Physical deformity and arrested development (later reflected by Alfred Adler in his organ inferiority theory); (b) perversions of normal function (reflected in Freud's theory of infantile sexuality); (c) disturbance of intellectual and emotional faculties (reflected in Jung's theory of introversion); and (d) adverse conditions in the physical and

social environment (taken up by all later theories). On the basis of this theory of the nature and cause of sickness, Morel attempted to explain the fall of civilizations. Society morals decayed and deteriorated, he asserted, because of the constitutionally sick individuals, such as Nero in ancient Rome, who were the leaders. In 1860, Morel expanded his concept of degeneration to include not only alcoholism, drug addiction, mental deficiency, languor, inertia, apathy, melancholy, malaise, and suicidal tendencies, but also pyromania, kleptomania, erotomania, nymphomania, and necrophilia. These degenerations, according to Morel, could be caused by unfortunate love affairs or thwarted ambition, or could be simply the inevitable consequences of advancing civilization. (The inhibiting force of advancing civilization was a causal agent that Freud later made central to his own theories about sexual inhibitions).

Morel's work set the stage for the psychological investigations of the latter part of the nineteenth century. Moll, Moebius, and Krafft-Ebing all followed the precedent set by him: the scientific convention of making detailed descriptions of individual patients and then drawing inferences from these descriptions. Krafft-Ebing's and others' compilations of such descriptions of sexual behavior of men and women in history were published to show evidence of degeneracy in their personalities and physiques. These writers were also concerned with unmasking the superior intellectual powers. (Psychoanalytic studies, such as Freud's (1947) study of Leonardo da Vinci, continued this approach). Lombroso, for example, stated unequivocally that genius is merely a sublime form of insanity, and he implied that intellectual activity in general might be a kind of refinement of criminal propensities. There was general agreement on the relation of art to insanity.

Freud's work was misidentified perhaps in the popular literature of pre-World War I as synonymous with the rhetoric of sexual liberation associated with many of the movements for reform and revolution in America and Europe. He was publicly endorsed by Leon Trotsky and was popular among many of the Marxist–Leninist circles then, although he was later strongly rejected by the Communists and Marxists as a representative of bourgeois decadence. Recently, Marxist–Leninist writers in France, such as some members of the structuralist movement, and the radical writers represented by Marcuse and Lasch in America have again taken up Freud as a "revolutionary liberator."

Freud himself was basically opposed to Marxism and socialism, having had Wilhelm Reich ostracized from the psychoanalytic establishment for this reason. He maintained by and large a conservative position identified with medicine, despite his defense of lay analysis, and practiced the popular techniques of his time, such as shocking people's limbs with faradic currents and using hypnosis. He was familiar with reference to the work of J. Hughlings Jackson, Herbert Spencer, and Charles Darwin, and had translated some of the work of J. S. Mill into German. These writers undoubtedly influenced his evolutionary and ontogenetic approach. After he studied the work of Charcot and Bernheim in France, Freud assimilated what he learned in his early education with Herbart's thought, thereby developing notions of primary and secondary process, unconscious fantasy, and the determining force of childhood memories. The notion of *condition prime*, or *primary condition*, was frequently

used in hypnosis to refer to the natural state of the subject, uninfluenced by the force of hypnotic instructions; the term *secondary condition* referred to the conditioned state in which the original natural state is modified by hypnotic influences. Substitute *reality* for *hypnotic* and one has Freud's primary process and secondary process, more or less. Frederick W. H. Meyers and E. Gamer of England in the 1880s described the unconscious strivings of another self apart from the conscious self, which they called the *subliminal self.* They believed that every human being had this kind of divided personality. Writers of fiction portrayed this theme, for example, Dostoyevsky (1850/1958) in *The Double* and Stevenson in *Dr. Jekyll and Mr. Hyde.* In America in the 1880s and 1890s, Boris Sidis, Morton Prince, Joseph Jastrow, G. Stanley Hall, and others were investigating these aspects of personality.

William James was one of the major leading researchers on exceptional mental states, such as multiple personality, hysteria, and psychical research. G. Stanley Hall and William James had a cordial and productive early relationship at Harvard in the late 1870s and early 1880s. In those days, the interest in paranormal phenonema caught the fancy of many important psychologists as well as philosophers. Nevertheless, what started out as a cordial relationship between James and Hall gradually developed into an ever-increasing competitive hostility (Taylor, 1994). And here, I would like to point out an unusual and interesting example of this tension between James and Hall, not commented upon since 1914 when Louis Wilson, librarian at Clark University, undoubtedly with Hall's approval, wrote the following:

> It was interest in occult phenomena and his growing and absolute incredulity that made him want to get at Mrs. Piper, although James, Hodgson, and others who had her in charge, were resolved he should not, and when he applied always wrote him that conditions under which they were experimenting must not be disturbed. When at last he did get a series of seances which were printed, he was told that he had murdered Hodgson's soul, who used to possess her, by the revelations in the book, and also that he had made it impossible for her to have seances and robbed her of her income. He says, "if we could only practice psycho-analysis upon these mediums it would be seen to be all a case of hysteria or schizophrenia" (Wilson, 1914, p. 113).

Hall's recommendation, that if mediums were to be psychoanalyzed they might turn out to be cases of hysteria, would be closer to the truth than schizophrenia. Nevertheless, it is quite clear that one could find this out today without having to resort to orthodox Freudian psychoanalysis (see Fig. 1.1).

The important turning point from hypnotic therapy to psychoanalysis occurred in Breuer's experience in treating Anna O. In fact, in his lectures given at Clark University in Worcester, Massachusetts, in 1909, Freud credited Breuer with being the true founder of psychoanalysis. There was a period in the course of what Freud referred to as the "talking-out treatment" when Anna O. spoke again and again of her thirst. Then one day, she went into a trance state in which she remembered a childhood experience of her nurse letting a dog drink out of Anna's drinking glass. With the recall of this incident, she became very angry at the nurse and expressed this anger toward Breuer directly. After this, her symptom of thirst disappeared. The point was, Freud emphasized, that simply to talk about the incident involving the

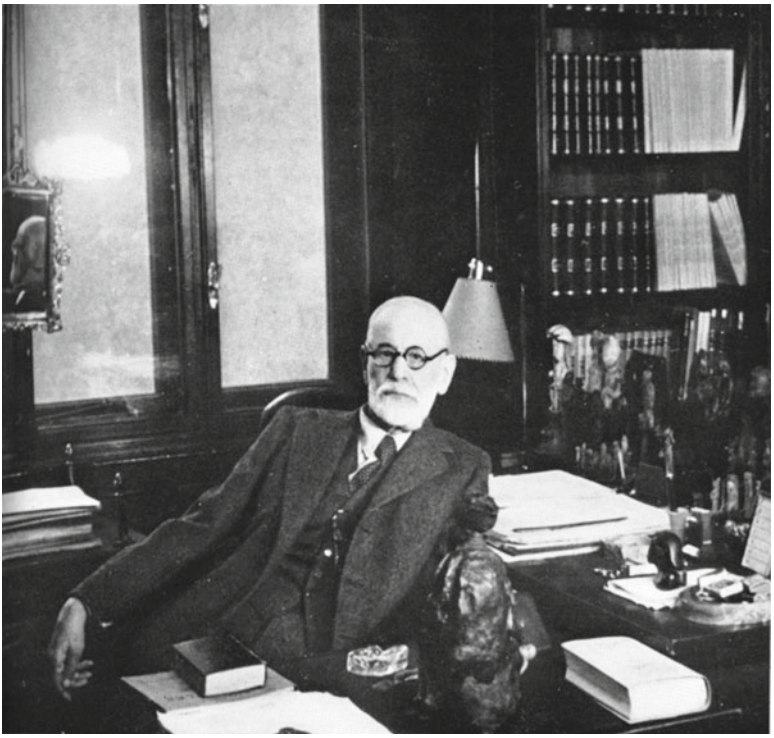

**Fig. 1.1**

nurse and the dog was insufficient for cure. What was required was that Anna O. express the strong feeling of anger that she had felt toward the nurse. She expressed this anger toward Breuer. Breuer named this expression of emotion *abreaction* – the patient now reacted toward the psychiatrist with the earlier emotion felt toward the traumatic figure. He distinguished this from *catharsis*, which was simply the relief experienced at talking out the fantasies that were imagined or remembered.

Freud paid special attention to this phenomenon of emotional discharge, even though Breuer was more interested in the different types of states of consciousness in which these reactions were originally formed and later expressed. Freud had been dedicated under Brucke to the understanding of all living phenomena, physiological and psychological, in terms of basic physical forces struggling with each other for the light of consciousness. He made this emotional discharge a quantitative item like Herbart's force or intensity. He called it the charge, the sum of excitation, the quantity of excitation, and the quantity of affect – these are all terms that he used in his attempt to abstract the fundamental or physical event from the communication between the patient and the doctor.

This emotional discharge was a certain something analogous to the "electric current" that Freud was later to call the *libido*. He identified it with the intensity

of feeling abstracted from the meaning that might be observed in a patient or communicated by a patient. Breuer traced the thirst of Anna O. to her repressed patient's anger toward her nurse, so Freud traced Lucy R.'s symptom to her repressed love for her employer. In both cases, the repressed emotions were thought to represent quantities of a kind of electrochemical fluid that was held back somewhere in the organism, prevented from flowing out or discharging. Freud (1946) developed this notion of excitation in repression further in his important paper in 1894, "The Defense Neuropsychoses" (pp. 59, 75).

Freud sought to generalize these ideas into an all-embracing medical philosophy. All real causes, he believed, are symbolized in science by the word *force.* Progress in knowledge has reduced all forms of force to attraction and repulsion. This applies to humans, as Freud saw it, as well as to all other organisms and to the physical–chemical universe. The unity of science and physical force, taught by Brucke, was something that Freud believed in with passion from his earliest writings to his last published work, *An Outline of Psychoanalysis* (1940/1949). Until his dying day, Freud sought to make psychoanalysis a science in the same sense that physics was a science.

*Studies in Hysteria* (Breuer and Freud, 1895/1911) was widely and enthusiastically endorsed. The concept of the unconscious put forth in these studies referred mainly to the past experiences, memories, and feelings that the individual cannot or will not communicate because of shame or fear of ridicule or condemnation. Soon, however, Freud began to develop a less personal and less individual concept of the unconscious, a concept that had more to do with electrochemical forces and with the romantic Absolute or Will. This grew out of his increasing interest in the sexual history of his patients and his recognition of the part it played in the origin and development of their neurotic illnesses. In tracing memories further and further back to the patient's earliest traumatic experience, he found childhood sexual experiences that very much impressed him. This led to the discovery of infantile sexual traumas, reported in his paper "Further Remarks on the Defense Neuropsychoses" (1896). On the basis of this early incomplete work, Freud assumed that he had discovered here the principal cause of these mental illnesses. Cure would follow, he believed, upon the complete analysis of every individual symptom by tracing back associations until one came to the primary cause, the early sexual trauma.

The long collaboration with Breuer that resulted in *Studies in Hysteria* was ended on the issue of Freud's conviction that sexuality is the only key to an understanding of all neuroses. Freud now went on to formulate his theory of psychoanalysis, with its emphasis on inhibited sexual excitation as the exclusive etiological agent in psychopathology. This was poorly received in the scientific and medical communities, not because of Victorian prudery, as Freud alleged, but because of its inadequate scientific base.

# Chapter 2
# From the Pharaohs to Freud: Psychoanalysis and the Magical Egyptian Tradition

*I don't wish you to understand what I have created without effort with which I have devised, not entirely without effort.*

– After Petrarch

Relationships between psychoanalytic theory and ancient Egyptian myth

| Freudian theory | Ancient Egyptian beliefs |
|---|---|
| *Basic instinctual drives* | |
| Libido | Ra and Osiris |
| Aggression/death instinct | Seth |
| *Sexuality* | |
| Bisexuality | Mut |
| Incest/Oedipal complex | Geb/Nut |
| | Osiris/Isis |
| | Shu/Tefnut |
| Psychosexual stages | Mut |
| Penis envy | |
| *Mental dynamics* | |
| Unconscious | Ba-Ka-Akh |
| Superego | Thoth |
| Association | |
| Fantasies and dreams | The Egyptian book |
| Wish Fulfillment | Of the dead |
| Magical words and thoughts | Ren |
| Doppelganger | Ra/Dung Beetle |
| | Ka-Ba-Akh |

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## Introduction

If we find ourselves invited into the home of a new friend and left alone for 5 or 10 min, most of us I suspect would use the time to examine the books on the shelves. Such a surreptitious inspection will generally provide us with a sense as to our host's interests, his tastes, and even his obsessions. Were our host Sigmund Freud, we might discover some surprises among his collection. There would be, for instance, a disproportionate number of books about ancient Egyptian history, art, and mythology. In fact, Freud amassed more books on ancient Egypt than any other subject apart from psychology and allied disciplines. The titles in Freud's library offer only one example of his enthusiasm for ancient Egypt (Appendix A in Chap. 4, Fig. 4.2). In a letter to his wife, dated October 8, 1885, he writes: "I just had time for a brief visit to the Egyptian rooms at the Louvre in Paris. I must visit several times. Egyptian reliefs, real sphinx, a dreamlike world …" (Freud, 1975, p. 173). In another letter, he records his delight at coming across an Egyptian obelisk from Luxor in the Place de Concorde "scribbled over with the most beautiful birds' heads, seated little men and other hieroglyphs at least 3,000 years older than the vulgar crowds" (Freud, 1975, p. 173). His fascination for Egypt never wanes. In 1931, in the last decade of his life, in a letter to Stephen Zweig, dated February 7, he remarks that he has been reading more books about Egyptology than he has books about psychology (Grotjahn, 1961, p. 470).

Freud was also an ardent collector of Egyptian art, which he appreciated for its elegance and grace, its celebration of the body, and its sublime clarity and precision. Moreover, Freud's favorite art form was sculpture, a form that the Egyptians excelled in. And theirs was sculpture built for the ages. The Egyptians were wonderful engineers as well. For Freud, who worried about the survival of psychoanalysis, the pyramids of Giza must have served as an inspiring example (Burke, 2006, p. 223). He avidly followed news of the latest archeological finds in Egypt and even tried to decode hieroglyphics. Freud became smitten with Egypt at an early age. We know that as a boy of seven, he was entranced by The Philippson Bible, which was filled with illustrations of Egyptian gods, monuments, and landscapes (Davies and Fichtner, 2006, p. 21).

It is hardly a secret that Freud tapped the wellspring of Egyptian beliefs and mythology for three of his more problematic works – *Leonardo da Vinci and a Memory of Childhood,* Freud's first attempt to interpret art and biography using psychoanalysis; *The Moses of Michelangelo*; and *Moses and Monotheism*. But it is my contention that ancient Egyptian mythology and art shaped his theories of the unconscious and sexuality in a much more profound way than he was willing to admit. For example, as Burke notes in her book on Freud's art collection, much of the Egyptian art that Freud collected was destined for the tomb, hardly surprising in light of the ancient Egyptians' obsession with the afterlife. "It was an art of mourning that Freud began to collect while mourning his father and it expanded until his rooms, crowded with magical artifacts, began to resemble the tombs from which they were taken" (Burke, 2006, pp. 222–223). This is not to say that Freud had any

interest in the afterlife – far from it – but there is a substantial body of evidence to indicate that he saw in the Egyptian conception of the afterlife an analog for the unconscious. Just as archeologists were engaged in the excavation of the dark chambers of the pharaohs' tombs, so would he dig down into the dark chambers of the human mind.

Before I go on, I should like to say a few words about Egyptology. There is a significant difference between the practice of scholarship about ancient Egypt prior to Napoleon's conquest of the country and afterward. Referring to the earlier generation of Egyptologists, Jan Assmann observes: "Spencer, Warburton and Reinhold were all working within a paradigm of memory. Not observation. But this paradigm vanishes with the rise of Egyptology and all the carefully collected and interpreted body of knowledge about Egypt fell into almost complete oblivion as soon as the primary sources begin to speak" (Assmann, 1997, pp. 144–145). The Rosetta Stone is surely the best known of the primary sources, discovered by French archeologists under the supervision of Champollion. It should be noted, however, that while Freud drew on the work of both the earlier Egyptologists and the archeologists and scholars who came later, he seldom credited any of them.

Although Freud was notoriously reticent when it came to revealing the sources that he relied upon in developing his theories of psychoanalysis, he was especially so in regard to the influence of Egyptian mythology. I am not arguing that the debt that Freud owes to ancient Egypt has escaped scholars – on the contrary. In spite of Freud's various attempts to camouflage his intellectual antecedents, many scholars have taken note of the currents of ancient mythology that seep into many of his seminal texts. However, a survey of the literature has led me to conclude that biographers and historians of psychoanalysis alike have failed to connect the dots. Most of you are no doubt familiar with the Sherlock Holmes story "Silver Blade" in which the solution to the mystery is the dog in the night that did not bark. It is that deafening silence, that inexplicable absence, which gives the game away.

It is at this point that we might stop and ask: Why resort to mythology at all? What did psychoanalysis hope to gain from plundering ancient myths that it could not find anywhere else? Forrester contends that psychoanalysts looked to philologists for guidance about how to go about this enterprise: "In their struggle to secure the specifically psychoanalytic theory of myth, they (the psychoanalysts) sought both to present themselves as living under the same roof as the philologists, while at the same time providing the later with a key that could stop all the wrangles between partisans of differing mythological systems …" (Forrester, 1980, p. 180). We mention this because it is relevant to our discussion, even though it is still speculative.

For example, consider what Freud had to say about the history and evolution of cultural institution. Here, Freud discusses the relationship of psychology and linguistics to the deeper mental strata of the mind. "If one adhered to the psychological views gained through the study of dreams, it was only one step forward to proclaim psychoanalysis as the theory of the deeper psychic processes not directly accessible through consciousness, and as a psychology of the deeper mental strata (Tiefenpsychologie) to apply it to almost all the mental sciences." This step consisted

in the transition from the psychic activity of the individual to the psychic functions of human communities and races, that is, from individual to group psychology, and one was forced to it by many surprising analogs. Thus, it was found that the deep strata of unconscious mental activity contrasts are not distinguished one from the other, but are expressed by the same element. But the philologist K. Abel had already made the assertion in 1884 (Uber den Gegensinn der Urworte) that the oldest languages known to us have treated the contrast in the same manner. Thus, the old Egyptian language had originally only one word for strong and weak, and only later were the sides of the antithesis distinguished by slight modifications. Even in the most modern languages, one can demonstrate distinct remnants of these contrasting meanings; thus, the German Boden signifies the upper most as well as the lowest part of the house, and similarly Altus means high and deep in Latin. The equalization of contrasts in dreams is thus a common archaic feature of human thinking (Freud, 1924, pp. 520–521).

We need to consider why Freud might have been drawn to mythology and dreams in the first place, since they are notoriously subject to conflicting interpretations. A possible explanation might be found by comparing Freud's approach to that of the French structural anthropologist Claude Levi-Strauss. They both have a good deal in common. Levi-Strauss, like James Frazer, is sufficiently critical of his source material regarding the relationship between magic, myth, and totemism. His treatment of the structure of myth is very clever, as was Freud's. Freud, too, had read Frazer. But whether they engaged in much more than clever speculation remains a matter of opinion. Myth is a very murky and not very well-defined category. Some scholars use it as an example of erroneous history: something about the past which we know to be inaccurate or something that did not happen at all. The religious use of the word is much different and takes on the cloak of mystery: something unobservable but nonetheless credible, like a sacred tale. The religious view of myth is exemplified in creation myths and the origins of culture. Freud's treatment of the origins of humanity is somewhat similar to that of Levi-Strauss and Freud's in many respects – for instance, his theory that the Oedipal myth and the unconscious played as much of a role in the formation of society as it did in the individual. Like Freud, Levi-Strauss seeks to discover the way in which humans form thought. He assumed that our brain/mind interaction system is universal and that this could be established by examining the thought processes of primitive or indigenous peoples in different cultures at different times. Levi-Strauss asks us to accept a universal hardwired apprehension of the world, primarily nonrational in nature, which is shared by all humanity and manifests itself in primitive mythology. His analysis of myth is similar to Freud's interpretation of dreams and it also suffers from the same shortcomings. The Freudian argument is similar to the Straussian argument about symbolic associations and different levels of consciousness in the sense that if they were entirely false, it would not be possible to prove the opposite. In other words, Levi-Strauss' theories may just be so many elegantly phrased arguments with no possibility of empirical validation. Levi-Strauss is influenced by Freud in the sense that Freud also maintained that all human beings have an unconscious and a conscious and that the unconscious Id is the naturally occurring universal component of the mind.

By contrast, the conscious Ego is both culturally specific and universal. Levi-Strauss' approach primarily relies on language structures. His linguistic model employs an older variety of linguistic strategies which he uses with great skill. It is strongly influenced by Jacobson and the Prague School of Linguistics. He believes that at a particular level of language analysis, humans evolved to communicate and form social relations. At another level of analysis, however, humans engaged in a rather mysterious process of cognition in the sense in which it is first necessary to categorize the environment and then represent the categories by symbols and the elements of language before it is possible to engage in thinking about them. It involves a highly complex interaction between an individual's thought processes and the environment which he is thinking about. In the final analysis, the reductionist methods of both Freud and Levi-Strauss seem to defeat their own purpose. Reduced to a method which was lacking in all analytical value, psychoanalytic theory was forced into a predetermined model predicated on whatever evidence was available to support it, no matter how contradictory the facts might be. It is in this respect in particular that Levi-Strauss' method shares a great deal with Freud.

We also need to consider another influential body of thought – in some respect, one that is closer to home (that is to say, Freud's home) – and one similarly unacknowledged by the father of psychoanalysis: Jewish mystical tradition, which has its roots in ancient Hebrew beliefs. Although the Hebrews marched to a distinctly different drummer than the ancient Egyptians – the ardor for the afterlife displayed by the latter is altogether absent in the former – there is sufficient evidence to suggest a vigorous exchange of ideas between the two peoples. This cross-pollination is most palpably manifest in one historical personage close to Freud's heart – namely, Moses. But before we begin to burrow about in the bulrushes, let us begin … well, at the beginning: the creation of the universe as envisioned by the ancient Egyptians.

## Ancient Egyptian Creation Myths

"The Egyptians regarded the history of the gods as the only important history and that of human events as inconsequential," Hankoff writes in his chapter in *Body and Mind: Past, Present and Future.* He continues: "History for the Egyptians was a fixed matter…The universe for the Egyptians was created in complete, permanent form" (Hankoff, 1980, p. 21).

Ancient Egyptian religion is not easily understood by the contemporary mind; it lasted 5,000 years during which it produced no less than three cosmologies. Moreover, the religion meant one thing to the priesthood and another to the believers: what for the masses was polytheism was closer to a monotheistic system for the initiates. The gods and goddesses were actually personified ideas – truth, justice, or humidity, for example – and so represented different attributes of a god. Ra, for example, is the Sun, while Man-ra signifies his intellectual attribute. So you can see how easily one god could become two, three, or four, creating the illusion that there

was a multiplicity of deities when it was only one seen from different angles. This issue is quite similar to the controversy regarding dissociative identity disorders (Rieber, 2006).

The three Egyptian cosmologies are all variations on a single theme which is characterized by the emergence of order out of disorder. The primordial state of chaos was known as Nun; an undifferentiated mass but containing within it the seeds of all life. Chaos, as is evident from the world around us, did not disappear upon the creation of the universe but was essentially sidelined, becoming a refuge for dark forces waiting in ambuscade at the edges of the cosmos, always ready to interfere in the world if circumstances allowed them to. This was the dwelling place for stillborn infants or distressed souls who had not received proper funerary rites, all floating about – in Hankoff's phrase – "like drowned bodies" (Hankoff, 1980, pp. 42–44).

It was from this chaos that the sun emerged in the person of the self-created god Ra. Ra took the form of an obelisk called the benben. This obelisk was considered the petrifaction of the sun's rays. Ra was also manifested in the form of Khepri (a name which signifies "transformation") and was represented by an image of the beetle rolling its dung ball along the road. As the sun, Ra creates life by dispelling the dark. Ra begets a son Shu and a daughter Tefnut out of his own seed. Shu is the god of dryness and Tefnut, the goddess of humidity. The marriage of the two siblings is only the first of a succession of incestuous unions in which Egyptian mythology abounds. Their example was followed by the royal families. We will see how the incestuous impulses of these ancient deities and their putative human descendants bore fruit many millennia later in Vienna. I would even go so far as to say that the mythology of ancient Egypt might well have provided Freud with the inspiration, and possibly the impetus, to put forward a model of infantile sexuality based on the child's progression through oral, anal, and phallic stages.

But let us continue. From the union of Dry (Shu) and Humid (Tefnut) arose a second divine couple: the sky goddess Nut and the earth god Geb. Shu and his successor Geb (the earth god) play the same roles as Kronos and Zeus do in Greek mythology, which makes Geb, like Zeus, the father of humanity. The Sky and the Earth produce a pair more familiar to us – Isis and Osiris – and their siblings Seth and Nephthys. Osiris was the Sun and Isis was the Moon. Osiris was also the masculine, propagating principle in nature sometimes depicted with several phalli.[1] Isis was the feminine principle whose symbol was the Lotus flower (Budge, 1904, p. 204). Freud seems to have been attracted to her. One of the prized artifacts in his collection was a statue of the goddess suckling the infant Horus, which occupied an honored place on his desk. Burke describes her as a "goddess as Madonna, svelte as a girl," a study "in harmony and balance" who "provides an image of femininity that

[1] Because Osiris is almost always viewed as a chthonic deity, it is hard to see him as the sun. Ramessid images that depict the fusion of Ra and Osiris do so as a kind of fusion of the body (Osiris) and soul (Ra) of god with the idea being more one of the totality of opposites as in earth + heaven. My thanks to Professor Richard Wilkinson of the University of Arizona for informing me of the received view of this matter.

attracted Freud…" Isis was regarded as "the highest type of faithful wife and mother and it was in this capacity the Egyptians honored and worshipped her most." And as a symbol of the annual Nile food, she also represented fertility –mother goddess, emblematic of fecundity and renewal (Budge, 1904, pp. 281–284).

Osiris, too, was associated with the life-giving Nile. By contrast, his brother Seth was the god of droughts and deserts. If Osiris embodies the organizational force, his brother Seth represents its violent opposition (Grimal, 1994, pp. 42–44). Simply put, Osiris signifies the positive principle, his brother Seth the negative. The two were perpetually locked in an intractable struggle. In a fratricide reminiscent of the Cain and Abel story, Seth slays Osiris, causing Isis and his sister to scramble for pieces of his dismembered body in hope of reconstituting him. In his resurrection, which prefigures the death and resurrection of Jesus, Egyptians saw the promise of their own eternal life after death. Osiris was particularly beloved because he combined the roles of man, god, and savior. Yet at the same time, Osiris was the lord of the underworld responsible for guiding the dead in their journeys in the afterlife.

In those visits to the Egyptian rooms at the Louvre or later at the British Museum, Freud must have been struck by the recurring depictions of bisexuality and incestuous entanglements in Egyptian mythology. After all, Freud believed that his patients harbored many of the same desires and fantasies that the old gods did; the only difference being that the gods did what the frustrated Viennese secretly wished to but did not dare admit even to themselves.

In this brief survey of ancient Egyptian mythology, we can see the emergence of the themes that would be elaborated upon and explored throughout Freud's career: the conflict between the libido and the death wish; the Oedipal myth and the journey into the underworld which in psychoanalysis are analogous to the unconsciousness. "The male deities appear first as sons beside the great mothers," Freud wrote, but once the matriarchy was overthrown, "a patriarchal order" was established (Freud, 1939, p. 92). Historically, there is evidence that a matriarchal culture did relinquish its power to a patriarchal culture in some but by no means all cultures. Nonetheless, this scenario suited Freud's purposes. The conflict between the brothers – Osiris and Seth – is replaced by a conflict between the two brothers on the one hand and the now dominant father on the other. The brothers rebel against the father because of the monopoly he enjoys over the mother and by extension all women. Yet after slaying the father, the brothers are stricken – consciously or unconsciously – by guilt over what they have done. "*Totem and Taboo* was concerned with nothing less than the origins of human society," as Paul Roazen notes. Freud "had found that the Oedipus complex threw a light of undreamt-of importance on the history of the human race and the question of religion and morality" (Roazen, 1974, p. 250). It was guilt and fear Freud believed that lay at the root of the Oedipus myth and underlay all social systems. In tribal societies, Freud wrote, it was due to the threat of castration that the older males controlled incestuous longings among younger men, because only the severest prohibitions could "deter this persistent infantile tendency from realization" (Freud, 1926, p. 252). Freud argued that as children, girls and boys both experienced the Oedipus complex but its manifestation was different for girls as they grew older. As soon as they notice the penis of brother of playmate,

Freud asserts, they "at once realize it as the superior counterpart of their own small and inconspicuous organ, and from that time forward fall a victim to envy for the penis" (Freud, 1910, p. 134). Because of penis envy – the most controversial aspect of a controversial paper – girls extend to their mother and to all females a sense of disappointment, of lack, even of shame.

Where did Freud come up with the idea of childhood sexuality in general and penis envy, in particular? If we were to rely solely on Freud's own assertions, we would have to believe that these concepts originated with him. Certainly he was vehement in his denunciations of rival claimants, as vividly illustrated in his attacks against his contemporary, Berlin physician Albert Moll. Moll came up with a theory of childhood libido in 1898 and *The Sexual Life of the Child* did not appear until 1905. Psychoanalysts of the Vienna Society accused Moll of "an intrusion into the personal domain" of scientific competition. Freud derided him as "inferior" and "dishonest" and called him a "brute with the intellectual and moral constitution of a pettyfogging lawyer" (Roazen, 1974, pp. 193–195). Moll, it was alleged by Freud's partisans, "must have read Freud selectively" because he missed Freud's central points. In addition, Moll practiced hypnosis, a practice which Freud had abandoned. Also, Freud did not bother to credit Wilhelm Prior who not only proposed that children underwent distinct stages of development but also maintained that it was by studying abnormal processes that it was possible to understand the normal processes, another idea that Freud claimed as his innovation. We know that Freud had read Prior and even owned his books, something that Anna Freud confirmed to me in a letter. But she also emphasized that Prior's work had had no influence on her father (Rieber, 1975, pp. 7–11).[2]

I believe, though, that in trying to pin down the origins of his theories of childhood sexuality, a case can also be made that there was an Egyptian connection as well. In Freud's psychological study of Leonardo – what has been referred to as Leonardo's childhood "Egyptian phantasy," Freud focuses on a childhood memory of Leonardo's. According to this peculiar "phantasy," Leonardo was lying in his cradle when a vulture swooped down and forced open the child's mouth with its tail, striking his lips several times. It is an unusual and jarring memory to be sure and Freud makes the most of it. Actually, he makes too much of it. The vulture stands for the mother, Freud asserted. That was the same association that the ancient Egyptians made. How did Freud make such an odd connection? Here is instructive to examine the hieroglyph Mut which consists of a vulture-headed woman or a woman wearing a vulture for a crown. Mut translates as "mother," and not just any mother but *the* great mother goddess of Egypt, a kind of cosmic matron, who even outranked Isis. But – and here is where the concept of penis envy comes in – Mut was

[2] Signed letter from Anna Freud to Robert W. Rieber, May 8, 1975, printed stationery (in R.W. Rieber's papers and letters). Thanking me for my letter on May 1 to speak at the New York Academy of Sciences Conference and gives an apology for not being able to attend. She continues, "To answer your further question: Yes, my father had the book by Dr. Preyer in his library and he gave it to me to read when I was a young teacher. But, I do not think that his own work was influenced by Dr. Preyer's writings. Yours sincerely, Anna Freud."

also frequently portrayed as an androgyne – that is, she had a penis. Mut reappears after a fashion in Freud's theory of infantile sexuality in which the child ascribes a penis to the mother. There is further elaboration on this symbolic equation in that the vulture's tail represents the penis. In "Leonardo," Freud associated Mut with Leonardo's mother Catalina, who as the sole parent of an illegitimate son in his early years was also a mother–father figure. According to Freud, it followed that Leonardo's homosexuality was a result of his erotic, dependent relationship with his mother (Freud, 1910, p. 61). The premise is problematic to say the least. What is at issue here, though, is not the validity of Freud's theories but their origin, and in this case there can be no doubt: Freud was so dazzled by ancient Egypt that he was willing to plunder their tombs – metaphorically speaking – to find what he needed to prop up his theories.

A similar process was at work in his efforts to develop a theory of the psyche. Egyptian society was a daily reenactment of creation. The Egyptians did not make a distinction between mythology and history; the gods had not abandoned them and left them to their own devices, but were an ever-present reality. Their system of organization was designed to emulate that of the universe as a whole. The struggle between Osiris and Seth loomed large in the minds of people contemplating their passage from this world to the next. We find prayers against Seth on talismans, in *The Egyptian Book of the Dead*, and in inscriptions on the pyramids' walls. If the deceased had not led a righteous life, or if proper funerary rites had not been conducted, the afterlife could turn out to be a nightmarish experience; starvation and thirst could be one's lot (Carus, 1969, pp. 17–20). As we noted, it was to Osiris, who was both a god and a savior of humanity, that the Egyptians looked to guide them through this difficult passage and watch over them in the afterlife. But before achieving eternal life, they would first have to stand trial. This trial was known as the Weighing of the Heart. It is equivalent to Judgment Day in the Christian tradition.

Nevertheless, it is the trial itself that concerns us here. Among other relics in Freud's possession was a heart scarab on which there was an inscription from *The Egyptian Book of the Dead*, which in Wilkinson's translation reads: "O my heart…Do not stand against me" (Wilkinson, 1994, pp. 113). Budge's translation is even more intriguing: "My heart whereby I came into being! My heart, my mother… May it not stand up to oppose me at judgment" (Budge, 1923, p. 150). In this variation, a direct connection is drawn between the heart and the mother; indeed they are synonymous. Why would the heart condemn its owner? To Freud, the answer would be obvious. The heart is rendering judgment on behalf of the superego. The superego retains the character of the father, Freud wrote in *Ego and Id*, and dominates the ego in the form of either conscious or unconscious guilt. The superego represents both the higher nature of man and also the moral censor – "the germ from which all religions have evolved" (Freud, 1926, pp. 34–37). The superego decrees Thou shalt. Not only can it act independently of the ego, Freud asserted, but its "destructive component" could drive "the ego into death."

The concept of the afterlife is inextricably bound up with the theme of duality of the soul and the self that recurs throughout Egyptian mythology and that is seen again and again in Freud's writings. That duality was also manifest in Freud's art

collection. On the desk in his office, for instance, he prominently displayed a statue of Janus, "who," he wrote, "looks at me with his two faces in a very superior manner." Janus, the Roman god of doorways, looked two ways at once to guard both the interior and exterior of the home; as the god who gave us January, he was also the deity of beginnings, the promoter of all initiatives, a great "father," and solar god, who was placed at the head of all human enterprises (Burke, 2006, p. 162). Freud also owned an Etruscan bronze vase decorated with a Maenad on one side and a satyr on the other. The chaste Maenad faced him, while the grinning priapic satyr faced away, yet because of the artfulness of the sculptor, each face was dependent on the other – the woman's ecstatic, spiritual gaze and the libidinous male's alert, mischievous look.

In *Three Essays on the Theory of Sexuality,* published in 1905, Freud wrote that "in human beings pure masculinity or femininity is not to be found in either a psychological or a biological sense." "Every individual on the contrary displays a mixture of the character-traits belonging to his own and to the opposite sex" (Freud, 1901–1905). We have already noted the inherent duality in Mut, who is both human and bird as well as an androgynous figure – a woman with a penis.

For the ancient Egyptians, the very conception of the self was inseparable from the soul and this link remained in the afterlife; while still alive, the individual's self is known as Ba, which is also translated as soul. The soul is roughly identified with breath. Its symbol was a falcon or a stork-like bird with a human head – it is also the hieroglyph for wind (Breasted, 1999, pp. 55–56).

"Personifications may assist the culture and the individual in defining or delineating emotions and motivations. It is, however, a concrete and externalizing approach to psychological truth" (Hankoff, 1980, p. 22). Hankoff compares Ba to the much later Greek winged representation of Psyche, although it would be a mistake to draw an analogy between the two (Hankoff, 1980, p. 23). "The Ba of the living," he writes, is "a kind of reflective ego or voice for mental or spiritual matters." Ba is paired with Ka. In contrast to Ba, Ka was a vital spirit or force which guided and protected the individual in the afterlife and – here is the crucial point –functioned as the individual's invisible duplicate (Hankoff, 1980, p. 14). Ba and Ka are inseparable; they are two sides of the same coin.

But upon sloughing off the mortal coils, the individual's essence, if I can use that word, did not dissolve into thin air. For instance, a statue of the deceased was treated as if it were the individual himself. The statue was the deceased's "new dwelling place" (Hankoff, 1980, p. 23). Even inscriptions honoring the deceased were imbued with the spirit of the deceased. The emanations or noncorporeal aspects of the deceased assumed at least three forms: the Ka, the Ba, and a third manifestation called the Akh. Akh means glorious or shining and, like Ba, was depicted as a bird – the ibis. The Akh is regarded by historians as another ghostly aspect of the deceased, but one more transcendent and impersonal than its two companions – "a general celestial influence" (Hankoff, 1980, p. 25). All three of these aspects were present in some form during life but achieved their greatest importance and definition when death made the "corporeal part of man less imposing." The tendency to personify different aspects of a god applies as well to different aspects of the self or soul.

All three emanations – Ba, Ka, and Akh – were probably viewed by Egyptians both as distinct entities and as "overlapping phenomena of the deceased and as indissoluble elements of man as a psychophysical unity" (Hankoff, 1980, p. 24). If Ka is the individual's guarding genius, charged with ensuring that he will enjoy a comfortable afterlife, Ba is the birdlike ghostly presence that simultaneously inhabits both the world of the living and the world in which the individual will spend eternity. As Breasted noted: "The actual personality of the individual in life consisted, according to the Egyptian notion, in the visible body and the invisible intelligence, the rest of being considered the 'heart' or the 'belly' which indeed furnished the chief designation of the intelligence" (Breasted, 1999, p. 220). It is no surprise then that ancient Egyptians would try to capture this duality in symbols. We need only think of the dung beetle, depicted on so many scarabs, which is a symbol of fertility and resurrection because it lays its eggs in its own dung. In *The Egyptian Book of the Dead*, the glyph for duality (Ka) is depicted as a breast with two outstretched arms forming an incomplete square (Budge, 1899, p. 57). In fact, the very survival of the personality, irrespective of the physical death of the individual, depends upon the preservation of the "double" or his "other self," which is said to reside in the mummies or in his statues or inscriptions in his honor.

It is difficult to imagine that the dual nature of man – a duality that transcended the passage from life to life after death – could not have failed to make an impression on Freud. An individual could not be understood, even by himself, without taking the various, and sometimes warring, aspects of his personality – and of his nature – into account. Even though psychoanalysis abandoned all notions of a soul or a concern with the afterlife, we can still see how it appropriated such features of this ancient belief system to suit its purposes.

Until now I have been talking about the debt, sometimes acknowledged, more often not, that Freud owes to ancient Egyptian beliefs for many of his seminal theories. At this point, I would like to turn to the way in which he possibly appropriated ideas from the Egyptians for his therapeutic techniques.

## Ancient Egyptian Symbols, Magic, and Free Association

The relationship of form, symbol, and magical function may be seen in just about any class of objects in Egyptian culture as Wilkinson (1994, p. 113) points out in his book *Symbols and Magic in Ancient Egypt*. The basic principle is that the symbolism is both primary and secondary – primary in terms that objects have certain direct associations and secondary in that forms, shapes, and symbols can also make an oblique reference to other symbols. A scarab is directly connected to a dung beetle, which in turn is associated with death and resurrection. Taking another example, an open seashell can also signify the female genitalia because of the similarity in shape. By the same token, the ankh, the famous life symbol of ancient Egypt, was depicted in such a way that its top part also formed a pubic triangle. Similarly Osiris, the god of resurrection, was invariably shown with his phallus exposed.

The concept of primary/secondary associations that we find in ancient Egypt is central to Freud's interpretation of dreams. For ancient Egyptians just as for contemporary analysts, objects could even symbolize two different, contradictory things (Wilkinson, 1994, p. 113). In *The Egyptian Book of the Dead*, we find the image of two gods facing opposite directions with a stork in the middle. Below the image, an inscription appears which anticipates Freud's thinking by some 5,000 years. "I am Yesterday," it reads, "I know today" (Budge, 1923, p. 94). Only by understanding the past of an individual's life is it possible to understand his present. Those ancient Egyptians knew a thing or two.

For ancient Egyptians, though, these symbols with their multiple allusions and associations were also invested with powers. Whether these symbolic images adorned the wall of a pyramid or appeared on an amulet, they had the capacity to realize wishes and prayers (Budge, 1923, p. 94). Rabbit's legs and four-leaf-clovers may represent a comedown from elegantly crafted amulets, but the impulse that leads people to think of these objects even as a whimsical instrument of wish fulfillment stems from the same basic impulse. Freud's theory of wish fulfillment acknowledges that these longings are deep rooted and potentially a key to the unconscious.

The power that inhered in statues and in amulets also inhered in names. To the ancient Egyptians, an individual's name – ren – holds considerable magical significance "as an extension of its bearer, a source of his power, and a possible route to the inner being." So a name engraved on a statue was viewed as "a very real part of the dead person and a participant in all of his needs and procedures" (Hankoff, 1980, p. 14). Names, he writes, are "material parts of things, or even as the things themselves" (Hankoff, 1980, p. 256). The names of the devil, for example, alternately called the Great Dragon, Old Serpent, and Prince of Devils, possessed a fearsome power in this life as well as in the life beyond the grave. Because some names possessed magical power, they could only be used under prescribed circumstances; deities had public names and secret names. The same god could be identified by several names, some of which were reserved for special rites. Humans, too, had secret names. Names were assigned to different manifestations, as the example cited earlier of Ka, Ba, and Akh clearly illustrates. Certainly Freud was highly aware of the power of names, which may explain the omission of his own name from his famous essay on Moses of Michelangelo in Imago (Freud, 1914, pp. 15–36). Credit is not always given where credit is due even in this case by Freud to himself.

"In magic," Hankoff writes, "diffuseness means that the power is not focused compactly, but exists homogeneously throughout the whole ego halo, each part representing the whole" (Hankoff, 1980, p. 256). Put another way, the same magic found in a name or an amulet can attach itself to other material objects associated with the individual such as hair and pieces of clothing. (We find the same belief in voodoo.) "Symbols," notes Forrester, "are privileged since they refer us back to a time when the name and the thing matched each other perfectly" (Forrester, 1980, p. 129).

To the primitive mind, Paul Ricoeur observes, the symbol held an immediacy that is alien to modern man. In later eras, another relationship between symbols and consciousness took hold – what Ricoeur calls "truth at a distance," which is based

on a comparison of symbols. We cannot apprehend a symbol without first processing it through our intellect in an effort to explain it. Yet a third relationship exists, which Ricoeur describes as "a return to the immediacy of belief and therefore the powerful immediacy of religious symbols." Ricoeur argues that psychoanalysis "displaces immediacy through its distinction between surface ego" and what he calls "depth factors that lie beneath the surface sense of reality." He continues: "Psychoanalysis also focuses its work on language rather than on perception, recognizing that language always exceeds any immediacy of knowing" (Ricoeur, 1967, pp. 354). But for the meaning of the symbol to become known, the ego must be bypassed in order to uncover the patient's true motivation – and that leads through narcissism, the desire of the ego for immortality. That insight has led Ricoeur to call psychoanalysis a "semantics of desire"; only by taking desire into account can psychoanalysis reach a correct interpretation of the symbol (Ricoeur, 1974, pp. 186). The question boils down to this: is religious belief "a vestigial traumatic memory or is it a symbol capable of providing the first stratum of meaning to an imaginative presentation of origins, more and more detached from its function of neurotic and infantile repetition and more suitable for the investigation of human destiny?" Can it "rise above its own archaism" (Donald, 1999, p. 217)?

These are questions, Ricoeur writes, that only Freud's work makes possible (Donald, 1999, pp. 213–214). Freud's method, he believes, is based on a hermeneutics that juxtaposes "an infantile, idolatrous consolation and a higher consolation, the consolation of the spirit." If Ricoeur is correct, Freud was using an ancient religion as a convenient means of investigating neuroses and repressed desires, and in the process laying the cornerstone for a system that had much higher ambitions: an investigation of the human spirit.

But Freud could not escape the trap that he was laying for his patients if my supposition is correct. In the innovations he brought to the nascent practice of psychoanalysis and in the experiments he conducted in his attempt to treat and cure his patients, Freud himself was following in the path that had already been carved out by his ancient Egyptian antecedents. To practice as a physician in third millennium BC, Egypt was to combine rational and supernatural elements. Ancient Egyptian physicians made no distinction between the mental and physical functions of their patients – they were both part of a psychophysical unity (Hankoff, 1980, p. 7). In psychoanalysis, it is the Ego that has the ability to control the drives, but the patient cannot know what those drives are without the lid being pried open to expose the Id, revealing how the patient is being misled by those unconscious drives. Paradoxically, the theory of psychoanalysis is deterministic and reductionistic, but the therapy based on it is not. The history of psychoanalysis has been characterized by a continuing attempt to make the theory fit the therapy. The Egyptians did not have this problem.

In 1922, Levi-Bruhl[3] proposed the term preliterate for thinking that was neither alogical nor antilogical. He described a "law of participation," which was based on the idea that the primitive mind perceived a connection between all the representations

[3] Levi-Bruhl semiretracted his views in later life, and other anthropologists in England such as Evans-Pritchard and Rivers had little time for the primitive man/primitive mind connection.

in his mind. This view echoes Ricoeur's. Primitive man was believed to apprehend symbols with an immediacy that is no longer accessible to contemporary man. Levi-Bruhl's "law" would explain how Egyptians could look upon a statue not just as a representation but as a substitution – an embodiment really – of a dead pharaoh. Heinz Werner took this a step further and referred to a lack of differentiation in perceptions and meanings. Werner (1948, p. 69) maintains that a nonliterate's perception is physiognomic in quality. Moreover, Werner makes an interesting distinction between physiognomic perception and the anthropomorphic concepts of nature in nonliterate man. How nonliterate man would conceptualize his worldview would depend on "whether the original physiognomic experience of nature develops into a purely magical or an animistic daemonic, or a religious-theistic view of the world" (Werner, 1948, p. 80). The world of the nonliterate, he added, is "near at hand" (Werner, 1948, p. 404) – that is to say, it is more immediate and more direct. "There is less distinction between subject and object than in the modern mind" (Hankoff, 1980, pp. 6–8). It is curious that psychoanalysis found, in such a supposedly primitive conception, a potentially fruitful approach to treating patients.

One can easily see why as he immersed himself in the study of the ancient Egyptian mind, Freud might have been inspired to see in human development an evolution that retraced the steps that nonliterate, alogical societies underwent. After all, we see many of the same attributes: the dominance of magical thinking, the omnipotence of thought in young children, the wholesale incorporation of experience into a belief system without the intervention of a logical construct, and the conviction that objects are endowed with special powers. We can imagine that in his quest to unlock the infantile fantasies that motivated his patients, Freud was repeatedly reminded of the way in which ancient Egyptians experienced and mediated the world. It was for the Egyptians and for infants alike a world always and perpetually "near at hand."

But symbols of the kind we have been referring to could only become therapeutically useful in revealing the hidden recesses of the unconsciousness if they could be expressed. And that required words which are, after all, only another type of symbol.

In an inscription found on an ancient papyrus, we find written: Erta-na-hekau apen: "May be given to me the words of power" (Budge, 1966, p. 100). Certain words, it was believed, recited over a wax crocodile could turn it into a real one, or cause a man to remain alive for 7 days under water. Communication through language is the important medium whereby we realize ourselves in terms of our identity as human beings; that communication provides the glue that connects one generation to the next. When communication breaks down, however, and the generations are unable to understand each other, the result is the well-known phenomenon, the generation gap, which has probably never been greater in the last 100 years.[4] That interference in communication, in turn, can create alienation and psychosocial distress (Rieber, 2004).

[4] The generation gap was quite prominent in the 1960s and 1970s in the West and, at the time, was commonly acknowledged as a serious problem. However, today it is hardly acknowledged as a problem at all, and it is just that that makes it all the more dangerous. Unnoticed, it is more likely to continue and cause more harm.

If words have power – and they clearly do – then words might be mobilized therapeutically for the treatment of pathological mental conditions as Freud observed: "Foremost among such measures is the use of words; and words are the essential tool of mental treatment. A layman will no doubt find it hard to understand how pathological disorders of body and mind can be eliminated by 'mere words.' He will feel that he is being asked to believe in magic. And he will not be so wrong, for the words which we use in our everyday speech are nothing but watered-down magic, (due) to their former magical power" (Freud, 1890–1905, p. 155). It has been acknowledged by scholars for many years that the rational and supernatural elements are regularly combined in primitive medicine. It was largely because of Freud's insight that we accept as a given that disturbed mental states can affect and disturb the body, but we should acknowledge that the ancient Egyptian physicians in one way or another got there first. Let us give credit where credit is due, even if Freud did not.

As Paul Roazen notes, Freud explicitly associated the mystery of ancient Egyptology with "unknown territory of the unconscious" (Roazen, 1974, p. 259). So once that correspondence was made, the next logical step was to delve into ancient Egyptology for the vocabulary that could be used to explore and explain that unknown territory.

Freud needed a language and mythology – specifically Egyptian mythology – to provide him with the conceptual foundation and the vocabulary for the language of myth. Freud observed, for instance, that dreams of flying "have invariably the meaning: 'I can mate, I am a bird, I am sexually mature'" (Freud, 1910, p. 134). And, as we have seen, in his essay on Leonardo, he equated a vulture with the androgynous mother goddess Mut (and by extension all mothers) and a vulture's tail with a penis. Leaving aside for the time being the questionable value of drawing associations between phallic mothers and vultures' tails and penises, let us consider the construction of the equations themselves, the ability to make such symbolic and verbal correspondences, for in them we can catch a glimmer of Freud's thinking as he developed his famous therapeutic tool, free association.

We will never know the true origins of free association mainly because Freud chose to conceal them, whether intentionally or not. David Bakan records that as a youth, Freud read an 1823 essay by a writer named Ludwig Borne which clearly anticipates the method. Evidence suggests that "at best" Freud was unconscious of his sources, Bakan declares, adding: "It is difficult to maintain that the whole tapestry of psychoanalysis could have been drawn out of seeming historical nothingness." In addition, Freud was probably influenced by John Stuart Mill's classic study *A System of Logic: Ratiocinative and Inductive*, which he translated into German. In the book, Mill had embroidered on ideas developed by Jeremy Benthem that seem to anticipate the technique of free association. But Freud does not seem to acknowledge adequately any influence of the works of John Stuart Mill, either. I would contend that ancient Egyptian sources were among the sources that Freud seems to have conveniently forgotten. There is a lot of buried treasure in that nothingness.

In some way, free association must have seemed a marvelous solution to a vexing problem for psychoanalysis: how the analyst could draw his patient out to uncover

the patient's secrets without influencing or distorting his or her expression. The problem was more pressing since Freud had rejected hypnosis as a therapy as too dangerous (Rieber, 2006, pp. 53–56). Hypnosis, Freud believed, made the patient too susceptible to suggestion; there was always the possibility that the patient would "remember" events that never took place. As it turned out, though, free association was not the magic bullet that it must have seemed at the time. It is impossible to avoid the influence of the analyst since the analyst's silence itself plays an important role in the analytic session. In that respect, even free association can be considered an intervention. In spite of their best intentions, psychoanalysts to a large extent are remaking their patients in their own image.

Free association was intended to unburden the patient of his or her secrets. In Freud's view, secrets acted like poisons on the subconscious mind (Rieber, 2006, pp. 60–64). Freud was practically obsessed by secrets. Here again, we find another affinity he shared with ancient Egyptians. They, too, were obsessed with secrets. Each new god that entered their pantheon brought its own secrets. That their secrets were sexual in nature should come as no surprise. Freud's fascination with secrets seems almost puerile. "Freud was thrilled by the idea of a 'secret council,'" Ernest Jones wrote, "and it took hold of his imagination 'immediately,' though he recognized its 'boyish and perhaps romantic element'" (Jones, 1955–1956, p. 43). He goes on: "To Freud 'the affection of a group of courageous and understanding young men is the most precious gift that psychoanalysis has brought me.'" Freud's inner circle known as the Committee, consisted of Jones, Otto Rank, Hanns Sachs, Sandor Ferencczi, Karl Abraham, and Max Etingon; the first two breakaways were Wilhelm Stekel and Alfred Adler, followed by Jung (Jones, 1955–1956). Of course, every secret group needs its special sign and The Committee was no exception. Freud gave the members gems from his collection mounted in gold rings (Fromm, 1957).

Of course, free association was only one technique that Freud used that, if not directly, might well have been influenced by ancient Egyptian symbolism. Freud also embraced another technique – namely, dream interpretation – where it was much more difficult for him to deny ancient Egyptian influence. In fact, so obvious was the influence that he went out of his way to deny it. In *The Interpretation of Dreams*, for instance, Freud dismissed *The Egyptian Book of the Dead* – the Baedeker of the afterlife – as a cryptology codebook, one in which he said an image or a word merely stood for another rather than as a means to explore the psyche. While insisting that he had not used the Egyptian dream book as a model for his book of dream interpretation, he nonetheless acknowledged as much in a letter to William Fleiss in which he half-jokingly thanked him for his "cooperation" in consulting on the Egyptian text (Freud, 1985, pp. 366).

All the same, Freud was certainly aware that he was following in the footsteps of Joseph, Egypt's most famous practitioner of dream interpretation. Even so, Freud realized that he was making a big gamble. He had to distinguish his method of dream analysis from "the older symbology," while reassuring his readers that it had nothing to do with "quackery and superstition." Freud understood that "it seemed quite inconceivable that anyone who had done serious scientific work could make

his appearance as an 'interpreter of dreams'" (Freud, 1900–1901, p. 614).[5] Even the title of his book inevitably aroused suspicion because it brought to mind the disreputable dream books sold in stores. But Freud insisted that "the respect paid to dreams in antiquity was based on 'correct psychological insight' because it emphasized 'the uncontrolled and indestructible forces in the human mind' and the 'daemonic power which produces the dream wish.' Instead of dismissing dream divination, Freud instead tried to circumvent the problem by asserting that 'psychoanalysis arrived at a different conclusion'" (Freud, 1926, p. 43).

For Freud, the meaning of a dream inhered in the dreamer and in his associations rather than as a clef, according to the "Egyptian" decoding method with its ready-made symbols. Freud argued that the interpretation should depend on the dreamer's personal, spontaneous, yet determined, associations to the dream scenes, images, thoughts, and emotions. In that way, the dream and the memory of the dream emerged from the unconscious depths in the form of a personal experience. But Freud again fell into a trap just as he had by championing free association. In effect, he did what the Egyptians had done and created his own dream book (Freud, 1900–1901, pp. 97–98). The title page of *The Interpretation of Dreams* has this illuminating quotation from the *Aeneid*: "If the gods above are no use to me, then I'll move all hell." Freud cites this quotation in his discussion of the way in which "suppressed material finds methods and means of forcing its way into consciousness in dreams" in the words of David Bakan. God is identified with the superego and his antagonist is the Devil. The analyst stands between the two as the forbearing, understanding father figure who also allows the patient to violate the superego. According to Roheim, the dream "is a refutation or rebuttal of an attack made upon the Ego by the Super-Ego." Although the dream is the beginning of a rebellion against the superego, its ultimate purpose is, as Bakan puts it, an even more rebellious act: "to strip the dream of its disguise…" (Bakan, 1965, pp. 210–211). That is to say, dream interpretation, like free association, is intended as a therapeutic technique to pull the lid off the Id and help the patient put his feelings back together. Freud ignored the lesson of Humpty Dumpty, believing that he could marshal all the king's horses and all the king's men to put him together again.

Silberer has proposed that symbols represent a movement away from the intellect toward the senses, from the idea to the image (Dalbiez, 1936, pp. 107–109). Freud seized upon this notion to reverse the process, to use the symbols as "derivatives of thought which have to be constructed before the 'real' business of interpretation can start." Those symbols, however, reach far back into the personal history of the patient – to infancy – where sexual secrets have their origin.

[5] In writing about his own analysis of dreams, Freud, in recalling a dream from his early childhood, sees his mother in a peaceful sleeping state being carried into the room by several people with bird beaks and laid upon a bed. The dream was a nightmare, and Freud woke up screaming. Freud believed that the tall bird-like figures were derived from the illustrations to the Philippson's bible. He fancied that they must have been gods with falcon heads from an ancient Egyptian funereal relief (Freud 1976, p. 163 and Freud 1900–1901).

If Egyptian mythology offered Freud the underpinnings – and at least some of his inspiration – for his theories on the unconscious, it is possible that Egyptian history was equally important in his theory of the conscious mind. Assmann and Fitchner have both cited evidence indicating that Freud was influenced by the work of James Henry Breasted, the famous Egyptian scholar (Davies and Fichtner, 2006). Freud was especially drawn to the heroic figure of the pharaoh Akhenaton, who has been called the "first individual in history" because he appeals to "no myths, no ancient and widely accepted versions of the domination of the gods" (Assmann, 1997, pp. 275–282). Whereas Egyptian mythology was preoccupied with darkness, chaos, and the afterlife, Akhenaton draws back the curtains and lets in the light. It is the sun and not the gloom of the pyramid that characterizes Akhenaton's worldview. No wonder Freud identified with him because was not it the purpose of psychoanalysis to throw a bright, purgative light on the secrets bottled up in the unconscious?

Although the solar monotheism that Akhenaton introduced did not survive his death in or about 1535 BC, scholars have suggested that it paved the way for the adoption of the more abstract monotheism adopted by the Hebrews. Breasted even finds echoes of Akhenaton's Hymn to the Sun in Psalm 104. A reading of the first few verses would seem to give weight to Breasted's view:

> Praise the Lord, my soul.
> Lord my God, you are very great;
> you are clothed with splendor and majesty.
>
> [2]The Lord wraps himself in light as with a garment;
> he stretches out the heavens like a tent
>
> [3]and lays the beams of his upper chambers on their waters.
> He makes the clouds his chariot
> and rides on the wings of the wind.

Akhenaton's religious experiment introduces a groundbreaking idea – monotheism – to the world. His conception of monotheism is distinctly different from that of the Hebrew people who might or might not have been dwelling in Egypt in 1279 BC when Ramesses II came to the throne. Nonetheless, once the seed has been sowed, there is no telling where it will spread or in which soil it will grow best.

It is at this point that I would like to consider how Jewish mysticism shaped Freud's thinking. Far from representing a digression from my topic, I would argue that, on the contrary, a discussion of the influence of ancient Egyptian belief on Freud would be incomplete without reference to the interaction of the Egyptians and the early Hebrews.

## The Influence of Jewish Mysticism

In spite of the impoverishment of archeological evidence, historians believe that the triangle at the eastern end of the Mediterranean formed by Greece, Canaan, and Egypt was the nexus of a robust cultural exchange among the inhabitants of those lands. It is possible that concepts of mind, soul, and body arose among these cultures

as a result of this exchange rather than developing independently of one another. Both Egyptians and Hebrews of the second century BC shared concepts of body and mind. Both viewed man "as an indissoluble psychophysical unity, whose thoughts, emotions, and actions issued from his total being" (Hankoff, 1980, p. 28). Evidence is emerging that this cultural exchange has a long history. In 2002, for instance, archeologists turned up what possibly might be the oldest Semitic text ever found. The inscription was discovered in an underground chamber of a pyramid near Cairo. Written about 5,000 years ago, it consisted of a magic spell to keep snakes away from the mummies. Evidently, the ancient Egyptians believed that some snakes spoke the same Semitic language as the Hebrews and Phoenicians, and so it naturally followed that they should use a language the snakes could understand. Interestingly, the Semitic text was interspersed with the hieroglyphics. Even medical terminology was borrowed or shared between the cultures. References to physiology and medicine in the Old Testament reflect Egyptian influence (Hankoff, 1980, p. 3). The well-known Hebrew word for madness, meshugga, is derived from the Egyptian word referring to imbecility or stupefaction. The vocabulary of madness would not, of course, be possible without the concept of madness. In the Old Testament account of the slaying of Goliath, for example, written before 722 BC, we learn that David feigned madness in order to escape revenge by the Philistines "and with such successful and repulsive verisimilitude that the Philistine king ordered him driven from court" (Hankoff, 1980, p. 3). As Hankoff points out, this incident illustrates that ancient man had already a fully developed grasp of how the mind works. "It portrays the meaning of losing one's mind, the stark difference between madness and sanity recognized by all, and the possibility that states of mind could be consciously simulated" (Hankoff, 1980, p. 3).

There are, to be sure, significant differences between these ancient cultures. The principal distinction is found in the Hebrews' and Egyptians' view of life after death. There is no reference to a soul minus a body or a body minus a soul after death in the Old Testament. Biblical language which is used to describe the human emotional and spiritual experiences is almost never used in connection with the dead. The soul ceases to exist at the death of the individual. In marked contrast to the ancient Egyptians, the early Hebrews had no cult of death and forbade any representations of the deity. For the ancient Hebrews, the concept of spirit – ruach – was only used in connection with the living – as the indwelling principle of life derived from God – which "in all of its usages supports the concept of psychophysical unity and is never used as a spiritual reality apart from the rest of man" (Hankoff, 1980, p. 3).

## Moses and the Ancient Egyptians

If there is one figure that represents the intimate, yet ambiguous relationship between the ancient Egyptian and Hebrew peoples, it is Moses. Was Moses a Jew or an Egyptian? Freud effectively made Moses an Egyptian, a gentile and an aristocrat, which in Roazen's opinion amounted to something akin to outright theft. "By transferring Moses into an Egyptian," Roazen writes, "he deprived Jews of their greatest

figure, perhaps unconsciously expressing his own discomfort about being Jewish" (Roazen, 1974, pp. 530–531). To be sure, Freud never attempted to deny his cultural roots as a Jew, but he wanted to distance himself as much as possible from Judaism as a religion.

Bakan writes that in his treatment of Moses and the Jews in Egypt, Freud "not only possesses an extraordinary gift for making the most fanciful hypotheses seem plausible, but admits the inadequacy of the evidence to support his conclusion" (Bakan, 1965). Moreover, Freud also discounts the sole known Egyptian reference to Israel because it does not fit into his chronological scheme. The argument that Moses was an Egyptian and not a Jew is based on flimsy etymological evidence concerning the origin of Moses' name (Cohen, 1950, pp. 139–140). Even Freud has to admit in *Moses and Monotheism* that he was grasping at straws: "If there was no more certainty than this to be attained," he writes, "why have I brought this inquiry to the notice of a wider public? I regret that even my justification has to restrict itself to hints" (Freud, 1955, p. 14). Freud ignored multiple sources when he wrote Moses, including the work of every major scholar of ancient Egypt including Spencer, Warburton, Reinhold, Schiller, and extending as far back as Clement of Alexandria, Eusobius, Maimonides, and Ben Ezra. Although Freud was familiar with the Latin and Greek sources, he acted as if "only he is capable of bringing forth" the truth (Assmann, 1997, pp. 144–145). Certainly, Freud recognized that his interpretation of Moses was bound to get him in trouble. "To deprive a people of the man is not something to be gladly or carelessly undertaken, least of all by someone whom they take pride in as the greatest of their sons" (Freud, 1939, p. 7).

Schiller even went further and argues that Moses derived his concept of monotheism from his involvement with an elite circle of Egyptian priests. According to Schiller, Moses then inspired the "degenerate Hebrews" to accept a supreme god as their own. In Schiller's opinion, the Jews do not deserve any credit for introducing monotheism to the world; in the divorce proceedings, the Egyptians are awarded both Moses and monotheism. Here is an instance where a whole group of people do not get credit where credit is due (Assmann, 1997, pp. 275–282).

Whether a small group of priests were truly custodians of the one true god of whom ordinary Egyptians were unaware is doubtful. What is not in dispute is that these priests were thought to possess extraordinary powers. It is worth noting that in the seventh and eighth books of Exodus, Egyptian priests were referred to as "wise men, sorcerers and magicians." They also functioned as physicians. For instance, a priest would recite the myth of a god recovering from the same affliction as the patient he was ministering to (Gordon, 1949, p. 217). The job description sounds could equally well apply to the psychoanalyst.

## The Root of All Evil

It is not so farfetched to relate the role of the psychoanalyst with that of the witch hunters of the middle ages, either. I am referring to the men who scoured Europe in search of people in league with or possessed by the devil. Before they could conduct

their trials and their purges, though, they first needed to identify the manifestations of satanic possession.

The idea that sickness could be caused by evil may call to mind the exorcisms of the Catholic Church, still occasionally sanctioned, by the way. But it is a notion that seems to have bewitched Freud, too. According to Bakan, Freud "saw sexual instincts as the root of all evil" (McClelland, 1964, pp. 128–129). The infant was born with powerful drives which, if he were only strong enough, would lead him to commit every crime – incest, rape, murder, etc. In other words, given the chance, infants would behave very much like Egyptian gods.

Freud was playing a dangerous game, Bakan says. Freud felt that in his psychoanalytic work, "he was entering into a pact with the Devil, that by exploring the underworld of the mind he could gain control over the evil forces within it" (McClelland, 1964, pp. 128–129). Here in a nutshell is the psychoanalytical dilemma. If the Devil resides in the unconscious, and if the analyst wants to penetrate the unconscious in hope of understanding the dark irrational forces in man's nature, then he was obliged to forge an alliance of convenience and make a pact with the Devil. What the analyst was doing was embarking on a journey into the underworld of the psyche. For Freud, sexuality was no mere metaphor but an expression of power to heal and as such "reveals most clearly its mystical character" (McClelland, 1964, pp. 195–196). In other words, the root of evil – sexuality – responsible for producing the illness was also potentially its cure.

To recapitulate: However widely separated by time and place, Egyptian seers, European witch hunters, and practitioners of psychoanalysis were all united by their belief that in order to understand and tame the dark forces of man's nature, it was necessary to make a pact, actual or metaphorical, with the Devil to understand and gain control over them. This required a passage into the underworld that in some sense is related to the journey the deceased Egyptians made into the afterlife. Certain rites must be followed, certain gods propitiated, and certain deeds performed. So it is instructive to note that psychoanalysts, too, "carried out their treatment with their patients, in the beginning unusually women, stretched out on a couch as if ready for sexual intercourse and also if dead on a bier, and the treatment involved a specifically a sexual relationship between the woman and her 'hidden' male analyst (transference)" (McClelland, 1964, pp. 195–196). Yet there was also a sexual element to this ritual: at least in the early days of psychoanalysis, the patients were usually women and their position on a couch suggested that they were prepared for sexual intercourse. In addition, the treatment involved a specifically sexual relationship between the woman and her male analyst – namely, transference. David McClelland in his *Roots of Consciousness* sees this symbolic relationship as possibly playing out as a recreation of the eternal Harlequin theme – "of a woman being sexually seduced by Death." In this role, psychoanalysts were perceived as dark, foreign "devils," facilitating the transition between the consciousness and the unconsciousness, between this life and the afterlife (McClelland, 1964, pp. 195–196). So not only did they make a pact with the devil, they *were* in effect assuming the role of the devil!

Once again the paradoxical nature of psychoanalysis reveals itself; the reductionist theory (sexuality is the big secret and source of evil) is in conflict with the therapy upon which it is based (understanding sexuality is the cure).

I have referred to the parallels between psychoanalysts and ancient Egyptian magicians and medieval witch hunters. To this list I would like to add rabbis. As Bakan noted, the aims of psychoanalysis and Jewish mysticism are quite similar. Both psychoanalysts and rabbis employ techniques that have a good deal in common. Rabbis specialized in making complex interpretations and reinterpretations of Jewish law. Psychoanalysts, too, are in the interpretation business. But some rabbis preferred to dip into the murkier, more treacherous waters of Jewish mysticism. As someone who had plunged into those waters himself, Freud was naturally drawn to their work. There was interpretation business to be done there as well, but it was a much stickier enterprise.

## Freud and the Kabbala

There is no question that Freud was acquainted with the Kabbala. He owned a copy of the French version of the Zohar, one of the principal works of the Kabbala (Bakan, 1965, p. xviii). For someone who was an advocate of rationalism, he seems to have taken the Zohar a little too much to heart. The Zohar ascribes numerical meaning to all words that appear in the Old Testament. Convinced that he would die around the age of 60 years, Freud developed a fear of the number 60. On a visit to Athens when he was 63 years, for instance, he kept encountering the number 60. Spending a night in Room 31 at a local hotel caused him considerable distress because 31 doubled equals 62. That was close enough to 60 to stir his anxieties. He allowed how his superstition about numbers was "another confirmation of the specifically Jewish nature of my mysticism…" (McGuire, 1974, p. 219).

Aside from feeding his fear of certain numbers, the Kabbala, specifically the Zohar, also appears to have influenced the way in which he conducted his therapy. Jewish mystical tradition adopted the same detailed textual approach that Torah scholars used but in a freer, less rational, more metaphorical manner – "skipping and jumping" in the words of the Kabbalist Abraham Abulafia. Obviously such an approach invites comparison with free association. Freud would have found the Kabbala more fertile territory to mine than the legalistic texts that formed the body of Jewish law. Moreover, many of the elements of ancient Egyptian mythology that appealed to Freud have resonance in Jewish mysticism. There are two major books in the Kabbala – the Zohar which means light or radiance, and the Sefirot, which is usually translated as emanations. Jewish mystical tradition and psychoanalysis had something else in common since they both aim to understand human nature. The Zohar, for example, suggests that man may be conceived as a text requiring exegesis. As we have seen, Freud believed that if the analyst were to gain mastery over the unconscious irrational forces in human nature, it was necessary to "skip and jump," to employ techniques that relied on the imaginative use of free association, dream interpretation, and metaphors. Only in this way was it possible for man to be released from the bonds of oppressive rationalism and moral obligations. As I have noted previously, the knowledge that the analyst – and the patient – uncovered in the journey

to the uncharted territory of the unconscious was knowledge of a very special kind. It was healing sexual knowledge. In Hebrew, the word for "knowing" (yada) can have a sexual connotation as illustrated in the Book of Genesis. Adam knew Eve, the Bible says. "And the eyes of them both were opened and they knew they were naked." McClelland maintains that Freud's emphasis on the power of sexual knowledge places him "at the very center of the Jewish mystical tradition." Nowhere in Jewish mysticism do we find this association exemplified more than in the Zohar which recasts much of the Jewish religious tradition in sexual terms. God is described in terms of "a provocative anthropomorphism" according to the great Kabbalistic scholar Gershon Scholem, in which "the body of the Divine Presence" is concealed in a garment of light which God wrapped himself in at the moment of creation (Scholem, 1978, p. 17). The Kabbalistic conception of God includes a female principle known as the Shekinah who has variously been identified with Israel and as the Bride of the Sabbath. In some texts, she is cast aside and then redeemed by God in a mystical union described in sexual terms.

In the Zohar, the beginning of creation is preceded by a series of acts that take place between the Ein-Sof – that is the Infinite or the Being without End – and the first Sefirah or emanation. In one of the earliest stages preceding creation, a well emerges from the primordial ether that surrounds the Infinite "like an aura." To quote Scholem: "The organic symbolism equates the primordial point with the seed sown in the womb of the 'supernal mother'… 'The palace' is the womb which is brought to fruition through the fertilization of the semen and gives birth to the children, who are the emanations." In other words, God creates existence from his own seed. Scholem continues: "References to male and female appear not only in the symbolism of father and mother, son and daughter…but also in the striking use of sexual imagery which is a particular characteristic of the Zohar…The use of such phallic and vaginal images is especially prominent…" (Scholem, 1978, p. 110). There is vigorous dispute among scholars of Jewish mysticism about the influence of pantheism in the Kabbala, whether God "is everything" and whether everything is unified in him, or whether the discontinuation of his presence would cause the annihilation of all existence. Nonetheless, as Scholem freely admits, the "problem of pantheism" does indeed exist. The descriptions of the origins of the universe and humanity found in the Zohar sound curiously reminiscent of ancient Egyptian mythology. We seem to have come full circle.

"Psychoanalysis did not spring full born from the head of its Zeus, Freud," as Bakan puts it, although analysts subsequently took great pains to pretend that it did (Bakan, 1965, p. 23). That brings us finally to the question as to why Freud and his disciples failed to acknowledge their debt to these earlier mystical – and mythological – belief systems and traditions. For one thing, many psychoanalysts may not have realized that they were borrowing from these traditions. But even if they had been, as Bakan points out, they would not have had any motivation to do so. Because Freud was convinced that he was practicing a scientific technique, any admission that there was anything religious about it would have undermined its reputation. The cover-up, if I can call it that, can also be accounted to Freud's discomfort with his Jewish roots. To admit that Jewish mystical tradition might have influenced his

theories or techniques might also have made psychoanalysis even more susceptible to skepticism and ridicule than it already was, and provide added ammunition to anti-Semites who surely needed no extra encouragement. Additionally, the acknowledgment of such a link would upset many Jews themselves who felt that the sexual aspect of Freud's theory might reflect poorly on their traditions (McClelland, 1964). Even as he downplayed his Jewish roots, he nonetheless derided Adler for renouncing his faith – for example, doing what Freud had done. But, of course, Adler's real sin lay in his betrayal of psychoanalysis. Learning that Adler had died on a visit to Scotland, Freud wrote to Zweig, telling him not to be too upset; having abandoned both Judaism and psychoanalysis, Adler deserved to die far from home. In Jewish tradition, dying far from one's family was considered an ignominious fate, almost a curse (Rieber, 2011). Talk about hammering another nail in the coffin!

But Freud had other, less savory motivations in promoting psychoanalysis as a revolutionary approach that owed nothing to historic antecedents. Freud seemed to have suffered from a Messiah complex and at least unconsciously saw himself as the founder of a new quasi-religious movement which would replace outworn traditions of orthodoxy (Fromm, 1957). He spoke about the creed of analysis that he had created which would eventually replace the Jewish law and predicted that "our results" will last long after his own name "had been wiped out" by the passage of time (McClelland, 1964, pp. 128–129). Like Moses, he worried about a successor who would carry on his "creed." He could try to dismiss the importance of his Jewish roots all he wanted, but he could not escape from them; Judaism was like a ghostly presence hovering over him, accompanying him wherever he went – just like Ba.

Freud faced other antagonists who threatened the future of his "creed." Recall the quote from Virgil that I cited earlier which appears on the title page of *The Interpretation of Dreams*: "If the gods do not recognize me, I'll raise all hell" (Rieber and Salzinger, 1998). That expression of rebellion applied not only to the Church but also even more so to the Viennese medical establishment with which Freud had tussled after their tepid reception to his 1886 paper on male hysteria. I believe that Freud consciously or unconsciously – we will never know for sure – was protecting psychoanalysis from the external threat of the establishment by hiding its true name. It is worth noting as an aside that even the name Freud gave to the therapy he conceived, psychoanalysis is problematic. Linguistic scholars have pointed out that a more accurate derivation from the Greek should be psych-analysis. To be sure, the added O makes the word trip off the tongue more easily, but perhaps at the price of precision (Gunduah, 2002). It is conceivable that Freud might have been using his own word magic to protect his precious newborn baby Psychoanalysis from danger.

## The Riddle of the Sphinx

We will now return to the place where we began – Freud's library. I have in my possession a facsimile of a bookplate of Freud's found in several of his books. The bookplate is particularly telling. At the time, bookplates were used not so much to

**Fig. 2.1** The Sphinx

identify the owner of the book as they were used to reflect his interests, temperament, and preferences. The bookplate in this case is a reproduction of the embossed image on the famous bronze medallion created by Karl Maria Schwerdtner and presented to Freud on the occasion of his 50th birthday. Its face portrait is typical for such an item; its side portrait is in bass relief and on the reverse we find a classical Greek depiction of Oedipus encountering the sphinx. It bears a quotation from Sophocles' Oedipus Tyrannus: "who divined the famed riddle and was a man most mighty" (Freud, 1976, pp. 186–187). Like Oedipus, Freud saw himself as a seer; it is the image he wished to impress on his colleagues – "as a mighty man with a mighty intellectual sword who wished to unveil the hidden knowledge of the sphinx" (Jones, 1955) (Fig. 2.1).

The Sphinx, as represented on the birthday medallion, is a much different creature than the one that was depicted on the Greek vases in Freud's collection. The Greek Sphinx is much less imposing than her Egyptian counterpart. On the medallion, however, she is portrayed as aggressive, poised for attack (see Chap. 3, p. 165).

Freud acknowledged his identification with the sphinx (presumably the more imposing, aggressive incarnation) on more than one occasion. He even collected several different images of the sphinx as if "exploring the various meanings she offered," including "a tiny Egyptian amulet… a sturdy compact terracotta figure from the late fourth century BC."

On a visit to Paris, Freud went to the Louvre where he was able to feast his eyes on an impressive sphinx carved from a single slab of red granite; originally found at

Tanis, it stood nearly two meters high and five meters long, with powerfully articulated legs and paws and "the calm visage of a pharaoh…." "I am under the full impact of Paris," Freud wrote to Minna Bernays on December 3, 1885, "and, waxing very poetical, could compare it to a vast overdressed Sphinx who gobbles up every foreigner unable to solve her riddles" (Freud, 1975, p. 173). Obviously, Freud did not believe that he was among them.

The origin of the Sphinx's name remains a mystery: its first representations are male; in Egypt it was a wise and benevolent guardian, a protector of entrances and passages in palaces and temples – a far cry from the enigmatic temptress of Greek myth. The Egyptian sphinx had more in common with the winged Assyrian Iamassu, which also served as a protector of entrances. By the time that the sphinx arrived in Greece, she had been transformed into a winged female with an ecstatic smile. In the fourth century BC, Sophocles cast her as the destructive trickster who had besieged Thebes, forming the image of her in words that has proven more enduring than any conceived in stone.

During the Age of Enlightenment and throughout the early nineteenth century, scholars were perplexed by the Sphinxian riddles involving the relationship between body and mind. They sensed that the solution to the riddle might have universal application but were baffled about how to go finding it (Falconer, 1788). Freud was undaunted. Where others had failed before him, he believed that he had solved the riddle.

Here is how Freud himself put it: "Corresponding with the history of this awakening, the first problem with which he (the child) occupies himself is not the question as to the difference between the sexes, but the riddle: Where do children come from? In a distorted form which can be easily unraveled, this is the same riddle which was proposed to the Theban Sphinx" (Freud, 1938, p. 595).

I have often wondered what would have happened if instead of Oedipus it had been the young Freud who had encountered the Sphinx on the road to Thebes. I imagine that Freud would have posed the same question to the Sphinx: Where do children come from?

And I imagine the Sphinx would have replied: Ah, that's my secret, isn't it?!

Whereupon Freud would say: I'll tell you mine if you tell me yours.

The Sphinx relents and agrees to answer. From stardust and flowers, the Sphinx says.

Stardust and flowers? Freud exclaims How's that?

Stardust, the Sphinx repeats, the Big Bang

Then Freud wakes up and psychoanalysis is born.

If we were to put Freud under analysis as it were, and in a sense that is what I have tried to do in this paper, I believe that we would find sufficient evidence to support a finding that he had hypnotized himself. He had fallen under the sway of Egyptian mythology and Jewish mysticism and then awakening from his dream he had "forgotten" where he had gotten his ideas. This evidence would surface even though he would doubtless try to conceal or camouflage his influences, asserting again and again that his theories were sui generis. But as much as he might deny his

debt to ancient Egypt, he would be doing so in an office crowded with relics of that civilization. The images of the sphinx are only one piece of the evidence. Similarly, the presence of the Zohar in his library – not to mention his Kabbalistic obsession with numbers – argues in favor of the influence that Jewish mysticism held over him. The two currents converge in the figure of the Egyptian and the Jewish Moses. Freud's struggle to come to grips with Moses consumed him from the beginning to the end of his career. According to his own admission, he spent a week in Rome, staring at Michelangelo's Moses in a trance-like state. But when it came to putting his name on the Michelangelo article in Imago, he balked – another sign of his conflicted feelings toward a subject with whom he identified perhaps too closely. Furthermore, he waited until the last years of his life to write *Moses and Monotheism*, realizing that he was likely to stir up considerable controversy in doing so. Moses seemed to defy his efforts to categorize him; on the one hand, Moses was the Egyptian seer and magician, on the other, he was the leader of the Jewish people, the man who gave them the problematic gift of monotheism. Moses represented the lure of the seductive gods of ancient Egypt and the austerity of the all-powerful Jewish God. In Freud's interpretation, the Moses of the Old Testament had been stripped of his Egyptian identity so that the Hebrews would have no rival claimant over him. In the same way, in constructing his own theories of psychoanalysis, Freud covered up the traces of ancient Egyptian influence. But once he had begun down that road, he had to conjure up a similar dissociation when it came to his debt to Jewish mysticism. Only in this way could he promote psychoanalysis as a substitute for the old religions, Egyptian or Jewish. However, as his struggle over Moses and his preoccupation with the Sphinx's riddle vividly illustrate, the project was fraught with difficulties. Freud could not escape his influences or his debts to the past. All he could do was pretend as if they did not exist at all.

In the final analysis, I do not wish you to assume that it was my intention to contribute to the current fashion of Freud-bashing. On the contrary, we would be doing a grave disservice to Freud if we did not assume the role of constructive critics of his psychoanalytic theory. In fact, I believe that only by subjecting Freud's theory to critical analysis is it possible for us to obtain a better understanding of his contributions to abnormal psychology. For it can safely be said that even Freud's shortcomings – perhaps as much as his remarkable insights – have helped us penetrate the mystery of human nature to which he had devoted his life trying to unravel.

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# Chapter 3
# On Interpretation of Mind

## Introduction

We all come to know that what we see and hear, what we experience, and what we are told, the "given," may or may not be the case. We are strangers to the world. Each of us was just born, if not yesterday, then just the other day. As strangers to our existence, we soon learn that thoughts we naively think often turn out to be false. We learn that people tell us lies. We learn that people may see and appreciate things which just are not so. We become self-consciously aware of ignorance in others and in ourselves. We become acquainted with things that we hold to be "so" even in defiance of what appears to us, of what is given to us. We come to understand how understanding depends on interpretation.

Sometimes we act like disillusioned and disappointed lovers. I think of the disappointed lover who, having believed that he was loved, finds out that the girl loves him not. So he comes to believe that no one can love him. He refuses to read the indications from others that they love him straightforwardly.

Something like that happened in the history of human thought. Quite precisely, as human beings become relatively sophisticated about themselves and the world, quite precisely when human beings were just beginning to feel that the world was their home rather than a way station to a more eternal dwelling place – I would date that as about the seventeenth century, with Newton, Locke, Leibnitz, Descartes, and Hobbes – human beings also found themselves in the concrete actual material of the planet, becoming both its masters and its slaves simultaneously.

In one sense it was a disaster. The disastrous feature is perhaps notable in the radical separation of mind from matter in Descartes, or the claim of Hobbes that the human mind could only know material substances. The disastrous feature is the captivation of the mind by a small insight. Such captivation grew strongly in the late nineteenth and twentieth centuries, and represented itself as science, science with a capital *S*.

It might be well to dwell a bit on this historical captivation of mind before entering the main topic of this piece of reflection more directly. For it is precisely this

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certain orientation, which is based on a small insight, that stands in the way of appreciating the *nature* of interpretation. Risking the dangers, while hoping to gain the advantages, of caricature, I suggest that the orientation I am referring to be called by the name of its representative, Ernst Haeckel. Let me call it *Haeckelism*.

Ernst Haeckel had been a student of Johannes P. Muller, just as so many important figures associated with the transfer of the naturalistic mode to biology and medicine, such as Helmholtz, Brucke, Du Bois Reymond, Ludwig, Schwann, Virchow, and others. He became professor of Zoology at the University of Jena and in his long career there he influenced many students. He was a major proponent of Darwin's theory of evolution, and lectured widely to both scientific and lay audiences on the wonders of Darwin's theory, carrying Darwinians very far. Darwinism was for Haeckel a total philosophy, and a total explanation of all of nature. He stressed the point that there could be no final causes and that there could be no legitimate teleological explanations of events. He drew the implications of a political and theological nature freely, in a way to support the movement know as Social Darwinism, and the undermining of classical religious notions. Haeckel argued that protoplasm arose originally spontaneously from the combination of elements and he was particularly fond of family trees showing the emergence of "man" from lower animals.

Haeckel influenced many students during his long career and wrote numerous widely read popular articles. Indeed, he was the object of criticism by his scientific colleagues for what some of them took to be his pandering to the public. History identified Haeckel as an important influence leading eventually to National Socialism in Germany (Gasman, 1971). Darwin believed that Haeckel's propagandistic approach to his ideas was largely responsible for the wide acceptance of his theory in Germany. The English translation of Haeckel's book *Die Weltratsel* (1899) appearing as the *Riddle of the universe* (1900) was widely read. In many instances, it was the foundation reading in science for many of those who came to teach in American universities early in the twentieth century. The book took a relentlessly materialistic monistic stance. It argued for the essential unity of organic and inorganic nature, of living and nonliving material. Haeckel argued that it was specifically the physical and chemical property of carbon, in complex compounds, which was the sole mechanical cause of all movement; and it was only movement that distinguished the organic from the inorganic. Psychology for him could only be a branch of physiology. There was no personal god, no immortality of the soul, and no freedom of the will.

If we now return to interpretation, the topic of this essay, it is the process whereby we make our way from what is given to us to what we take to be so. Interpretation is the process by which that unknown formulator went from what came to him as given of the world of time and place to the formulation of the first words of the Bible. And interpretation is to write it, hoping that by doing so he could get himself out of a bad mood (Jones, 1953, p. 356). As Ernst Jones writes,

> By general consensus "*The interpretation of dreams*" was Freud's major work, the one by which his name will probably be longest remembered. Freud's own opinion would seem to have agreed with this judgment. As he wrote in the preface to the third English edition, "Insight such as this falls to one's lot but once in a lifetime" (p. 350).

The basic assumption that Freud starts with in *The interpretation of dreams*, and in spite of its seeming banality that we very much need to take to heart in attempting to probe interpretation in general, is that the dream *has meaning*. The critical assumption is the existence of meaning to be discovered through the process of interpretation. That which is to be interpreted is not "without form and void." Yet its meaning is not just what it says. The meaning is not in the manifest content of the dream, even though the dream characteristically comes in the form of a "story." Indeed, it is quite precisely such things as dreams, hallucinations, illusions, and the like which make us aware that the way in which experience is given to us is not the way things necessarily are. Neither are dreams revelations to us from personified spiritual beings. They do not arise from the participation of the individual mind in the Great Mind of the Universe – although Silberer and Jung certainly came close to accepting something like that after Freud.

What is the case, according to Freud, is that the dream is a profound expression of the mind of the dreamer; that it arises from wishes which have been otherwise unexpressed and are seeking expression; that it arises out of a process of interaction involving forces that urge us to present ourselves to ourselves in a favorable light; that it draws its essential features from infantile experiences which may be virtually inaccessible to conscious adult awareness; that the erotic nature of the human being is somehow entailed in the dream; that there are a number of identifiable processes such as condensation, which are associated with the making of the dream; and that all of this may be discovered or uncovered through appropriate interpretation.

Beyond all that, Freud's book provides a kind of legitimation to the interpretative process which Haeckelism does not. Haeckelism, overwhelmed by its few insights and discoveries, would declare the meanings that it has *already* come upon to be *exhaustive* of all meaning, while the very idea of some kind of determination arising from a universe which is unconscious declares the existence of a realm of meaning beyond the realm of the manifest. For not only does the word unconscious point to something, that is, to *something* in the mind which we call unconscious, but also to the existence of a huge realm of being which we do not know about (e.g., black holes and death). While asserting the existence of the region, and in this sense making it manifest, it also declares it as a region whose nature is yet unknown. It is a challenge to engage in interpretation. Minimally, it is to *imagine* what it could be that we do not know. It thus licenses the imaginative process, which in and of itself has enormous value to life; for the human imagination is a major source of joy in human life.

Of course, Freud was not completely free from Haeckelism. During the same period in which he was developing his *The interpretation of dreams*, he was involved in his *Project for a scientific psychology*. It is to be recalled that Freud had been a student of Brucke and that Brucke was one of the leading figures in the development of a movement I am calling Haeckelism. Along with Du Bois Reymond, Helmholtz, and Ludwig, Brucke was trying hard to find ways whereby all areas of physiology could be handled in mechanistic terms, even before Freud was born. It is also to be recalled that however kindly it was done, it was Brucke who advised Freud to seek another career than the one in neurophysiology and thus launched him on the path

to his career in psychoanalysis, however much by default. Thus virtually at the same time that Freud was making vaulting progress in the development of his ideas for *The interpretation of dreams*, he had, as it were, to make obeisance to the Haeckelism, the religion of his academic fathers. This obeisance is in the writing of the *Project*. *The Interpretation of dreams* was similarly an act of obeisance, but the latter was to his kinship father. And indeed, the first presentations associated with *The interpretation of dreams* were two audiences of groups having their identity on the basis of the religion of Freud's kinship father, the first in *Judisch-Akademische Lesehalle* (Jewish Academic Reading Hall) in 1896, and then a more extended account before his Jewish society, the *Verein B'nai B'rith*, which took up two evenings (December 7 and 14, 1897) (Jones, p. 355).

I dealt at length on the relationship between Freud's development of psychoanalysis and the history of Jewish mysticism in my work *Sigmund Freud and the Jewish mystical tradition* (1958). There I argued that Jewish mysticism must be considered to be the historical context within which psychoanalysis developed. My guiding thought in that connection was that little in the "open" history of psychoanalysis compares in intellectual cogency with the likelihood of a "closed" source of ideas. In particular, I singled out the use of sexuality as a fundamental metaphor in the Kabbalistic tradition, and the methods of interpretation of the Bible of the Kabbalistic tradition.

## Interpretation Exemplified

It is often said that the essential feature of the scientific enterprise is the testing of hypotheses. This characterization does a disservice. The testing of hypotheses stage is so late within any scientific episode that to characterize the whole enterprise by it necessarily leaves out its most critical features. The scientific enterprise is better appreciated as puzzle solving or interpreting riddles. It is certainly true that the characterization of the scientific enterprise as hypothesis testing draws attention to many of the vocational features of the scientific enterprise. However, puzzle solving and riddle interpretation draw attention better to the *object* of interpretation, which is my concern here.

The essential feature of the scientific enterprise is that the object of investigation is not manifest from the beginning. Indeed, it is precisely when the object of investigation becomes fully and clearly manifest that the investigation may be satisfactorily terminated; and if the object of investigation were fully and clearly manifest, there would be no need for scientific investigation. I refer the reader to my *On method: towards a reconstruction of psychological investigation* (1967) where I treat at length certain features of the scientific enterprise in psychology.

I believe that we have been very much misled by such things as the idea so central to the tradition of British empiricism that there is nothing in the intellect except that which comes through the senses. It has led us to think that we have simply to be kind of passive recipients to the stimulation of the senses, and that somehow all

those familiar processes as searching, argument, calculation, representation, and presentation are as the taking in of raw meat and turning out scientific sausages.

It is of value to refer the interpretative enterprise to several human tasks in which the process of interpretation is central and critical. Three such tasks that are particularly valuable are those of the *detective*, the *inventor*, and the *warrior*. The detective interprets various clues in order to ascertain the detailed nature of an historical episode which is intrinsically unknowable directly. The inventor interprets the natural order in identifying potentialities and constraints for the design of some object which heretofore has not even existed in the world. The warrior seeks to detect the intentions, will, and resources of his opponents, allies, superiors, and subordinates, as well as his own, identifying potentialities and constraints for the design of strategies toward overcoming his enemy. He has the further aim of confounding the "detective" as his warrior-enemy. In each of these, although information which comes through the senses is extremely important, nonetheless, the objects of interest are characteristically precisely those which are not directly apprehensible through the senses. For the detective, it is a crime that is intrinsically unobservable (unless, of course, he makes himself an observer of a crime which has not yet been committed). The main concern of the inventor is precisely an invention which, having no actuality yet, can certainly not stimulate his senses. The warrior, as both detective and inventor, shares their nonsensory objects.

All three must bring a certain kind of intellectual *effort* to bear, for there is always *resistance* to be found in the path of interpretation. The warrior is confronted by the efforts of his enemy to conceal from him and to confound him. The inventor faces resistance associated with thought's characteristic "repetition compulsion," to borrow a term from Freud. And all interpretations entailing the interpretation of human mentation must confront "resistance" of the psychological nature of which Freud spoke. Indeed, we may well allow that perhaps even nature, in the sense of the natural sciences, resists being interpreted, if the slow historical process of scientific development may be used as evidence.

Toward the end of somehow giving some indication of what is involved in the interpretative process, I will present several examples. The first is from Voltaire's (1901/1747) *Zadig: the mystery of fate* (the third chapter "The dog and the horse"), the well-known story of a Babylonian sage whose wisdom brings him unfortunate consequences. It is a kind of allegory of Voltaire's own life as he viewed it, and gives some hint concerning a general social "resistance" in connection with interpretation.

If we allow that perhaps the benefits of wisdom are greater than the dangers, there is wisdom in this story for us. Voltaire allows Zadig to say "No man can be happier than a philosopher, who reads in this great book which God hath placed before our eyes. The physical universe before us is to be *read* in the same way that a book is read." Voltaire is here rejecting the kind of mindless empiricism which so often characterizes contemporary research and which evidently was to be found in the Europe of his day, and even in ancient Babylon: "There he [Zadig] did not employ himself in calculating how many inches of water flow in a second of time under the arches of a bridge, or whether there fell a cube-line of rain in the month

of the mouse more than in the month of the sheep." He [Voltaire] distinguishes the reading of nature from the sometimes vain fantasies that have on occasion characterized the history of the sciences: "He [Zadig] never dreamed of making silk of cobwebs, or porcelain of broken bottles." There may be room for quarreling with Voltaire on these points, but we will leave that and go on to the essential part of this story for our purposes.

The basic pattern of the reasoning is from effects to causes. In the first case of the missing dog, Voltaire notes the various patterns and prints in the sand, making an interpretation of a dog and its characteristics. In the second case of the horse, Voltaire notes patterns of dust, fallen leaves, and traces on stones, and makes an interpretation of a horse as of a certain kind. But the possibility of reasoning from effects to causes is, of course, based on prior knowledge of the relationship between causes and effects.

## The Problem of the Red Dots

Now, in this particular example, the cause and effect relationships which are involved are essentially physicalistic. But let me consider an ancient riddle (which perhaps may also go back to ancient Babylon) I first heard Max Wertheimer tell in a lecture at the New School for Social Research in the early 1940s.

There once was a king who was interested in finding the wisest man in his Kingdom. Through a series of tests he had selected three men. He was now interested in finding the wisest among the three. He devised the following test. He assembled the three men in a room and said to them:

> I will blindfold you. While you are blindfolded, I will put a dot of colored paint on each of your foreheads. I will put either a red dot or a green dot. After I am finished I will remove the blindfolds. If, after I remove the blindfold, you see a red dot on anybody else's forehead, you are to kneel. Your task is to tell me what color dot is on your own forehead. He who first answers correctly will be declared the wisest man in the Kingdom.
>
> The king placed a blindfold over each man's eyes. He then placed red dots on each of their foreheads, and removed the blindfolds. Of course, when he removed the blindfolds each man could see the red dots on the foreheads of the other two and, in accord with their instructions, they all kneeled. One of them, who was truly the wisest, announced to the king *after a moment*, "your majesty, I have a red dot on my forehead." The question we now ask is how did he know?

To fully appreciate the nature of the interpretative task which this riddle presents, I ask the reader to give some reasonable time trying to find the answer before reading on.

The answer is as follows. The possibilities are no red dots, one red dot, etc. However, all three would kneel if there were either two red dots or three red dots. This much we may assume that *all* three men understood. But he who was truly the wisest then went on. Knowing that the other two knew that the possibilities were either two or three red dots with all three of them kneeling, had he had a green dot

on his head one of the other two would have known immediately of the red dot on his own head. But since, *after a moment*, neither of the other two responded, he could conclude that he himself had a red dot on his forehead, that is, that two red dots could be excluded, leaving the three red dots as the last alternative.

It is to be noted that, assuming this whole thing to represent some reality and it is not a fiction, we are discussing a game which was constructed by the king. The total matrix within which the interpretative process takes place is inside a universe *created* by someone. Or, at least, we, I the writer and you the reader, find ourselves *inside* a context created by the riddle maker. It points up the importance of recognizing that in the process of interpretation, the terms even of a *created* context must be taken into account.

At the same time, the logical features are quite relentless. These logical features are more universal that the created context of the king's test or riddle. The enumeration of the possibilities, no red dot (or three green dots), one red dot (or two green dots), two red dots (or one green dot), and three red dots (or no green dots), is exhaustive under the circumstances. Similarly under the circumstances, they are mutually exclusive. In spite of the fact that we are into something which is quite an arbitrary creation, nonetheless, the logical features of it are quite objective. Furthermore, while all of the possibilities must be considered real, if we accept the terms of the tale, then their reality is in some kind of a separate universe than the presumed actual which is reported. That is, only the situation of the three red dots has become even fictionally actual, even though four possibilities, from zero to three red dots, are real.

The relation between thought and action must be allowed if this story is to make any sense whatsoever. One must presume that thought influences action and that action influences thought. It is precisely in the analysis of the way in which thought influences action, and action influences thought that the riddle may be resolved, that truth can be discovered.

## Deciphering the Egyptian Hieroglyphics

The decipherment of the Egyptian hieroglyphics, the carved, presumably sacred, picture writings of the ancient Egyptians, is one of the great examples of interpretation in the history of Western civilization. Carved in stone, numerous examples of hieroglyphic writing still exist. However, for much of the history of Western civilization, hieroglyphic writing has stood as a mystery, as uninterpreted. There is no evidence that any of the Greek or Roman invaders of Egypt were ever made privy to the mystery of hieroglyphic writing. The hieroglyphs have often been copied as symbols which Thomas Young who, as it were, "cracked" the nature of color by showing correspondence between colors and wave lengths; ascertaining the wave lengths associated with each of the seven colors which had been identified by Newton. He did the basic research which eventuated in the Young–Helmholtz three color theory, which is basic to color television, color photography, etc. (Fig. 3.1).

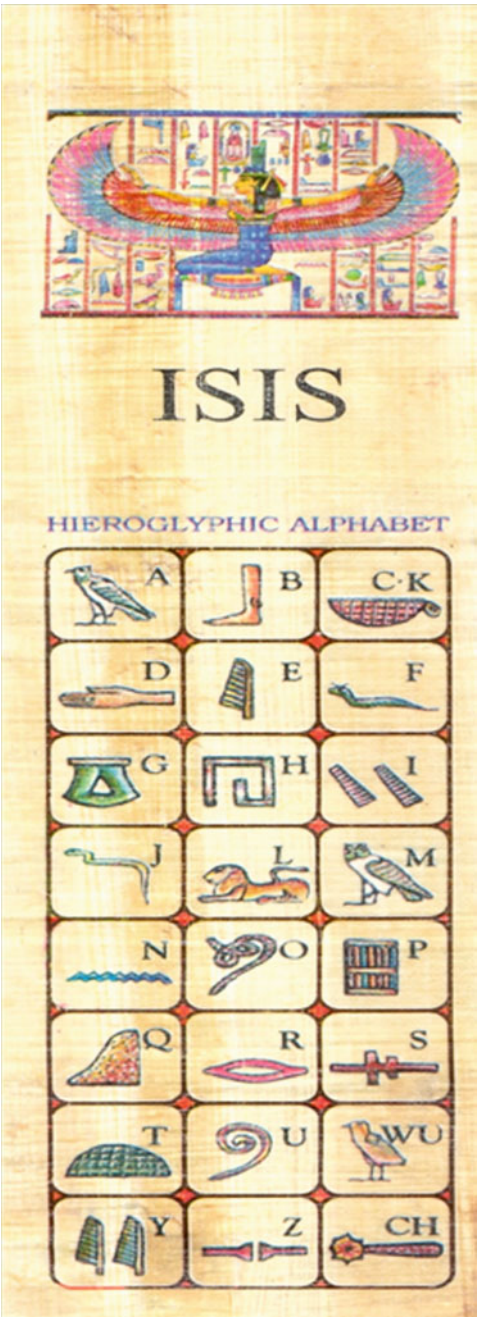


**Fig. 3.1** Hieroglyphics Alphabet

Young guessed that the hieroglyphics which were surrounded by ovals, which occurred occasionally, were the names of royal persons. He went to presume that the hieroglyphs within these ovals were phonetic, that is, symbols of sound rather than ideogramic. He guessed the direction in which hieroglyphics were to be read by the ways in which animal characters were faced.

Young left the work incomplete and it was continued by Jean-Francois Champollion. He worked out a long list of the hieroglyphic signs and their Greek equivalents. Champollion demonstrated that the signs were variously phonetic and ideogramic. He also marshaled strong evidence to indicate that the original text was Greek, and that the two Egyptian texts were translations from the Greek, rather than the reverse.

Based on the work of Young and Champollion, it is now possible to read, understand, and translate what was regarded for centuries as totally mysterious writing. The hieroglyphs raise some important questions concerning the nature of presumably certain great mysterious ancient wisdom. However, it was not until some years after the discovery of the Rosetta Stone that the writing was actually "cracked."

When Napoleon invaded Egypt in 1798, he brought with him several scholars interested in archeology. A French captain discovered the stone near Rosetta (or Rashid) in the northwestern Nile region. The stone came into British hands when the French surrendered Egypt to the British in 1801. The stone is presently in the British museum.

The Rosetta Stone is a flat sheet of Black basalt, relatively straight on the right and left sides. It is irregular and clearly broken on the top and bottom, interrupting the writing as though the "page had been torn." It is about two and a half feet wide and somewhat less than four feet high. It contains three sets of neatly carved inscriptions. One is in Greek and the other two in Egyptian. One of the Egyptian inscriptions is in common script and the other is in priestly hieroglyphics. The text in Greek indicated that the content of the three sets of writings was the same.

The pioneering work in deciphering the Rosetta stone was conducted by Thomas Young. I will presently argue that there is no essential difference between finding the meaning in a written text and finding meaning in the natural world. Thus, in the period of time before Young and Champollion human beings were, to use Whitehead's phrase, "incorrigibly there" (a phrase we will come to appreciate later, when I discuss Whitehead). At the same time, they were not "there" in the same sense as the physical configuration of atoms and molecules that made up the Rosetta Stone was there. Thus, we have something "there" which is neither human mentation nor physical. Yet it is something which is objective – and real. Presently, we will be able to appreciate this distinction when I turn to Karl Popper's notion of the "third world."

## Interpretations Without a "Dictionary"

It might be objected that, at least if we allow a certain relaxation of criteria, the Rosetta Stone, written in *both* the Greek and the Egyptian form of writing, constituted a kind of Egyptian–Greek "dictionary," and that there indeed was living, mentating,

human continuity in connection with Greek. This argument would appear to weaken considerably any argument suggestive of say Popper's "third world."

However, are there any examples of cracking a language or code *without* something that might function as a dictionary? Perhaps the most obvious example is the commonplace one of the child learning a *first* language. If we make the assumption that the child is born without knowledge of any language, then we have to take it that the learning of the first language is an example of cracking that language without a "dictionary," no matter how relaxed we make the criteria for what constitutes a dictionary. Even if we accept Chomsky's (1957) generative grammar, no one argues for a hereditary understanding of the items of a dictionary unless one would interpret either the Freudian or Jungian notion of universal symbolism.

In the history of the world, there are several lost languages which we have evidence of from inscriptions on stones and coins from ancient times. There have been a number of instances of decipherment of these languages without the benefit of an evidently similar message in two languages, one of them known to us and the other not. This kind of de novo decipherment has been accomplished several times (Doblhofer, 1961). It is a task that requires detective work. But it can be and has been accomplished. The only necessary condition for ultimate decipherment is that the body of the text be large enough to allow for the generation of hypotheses and to test hypotheses in contexts other than those from which they were generated.

In the contemporary world, the great need for sending and receiving messages over open airwaves and telephone lines led to giant steps in the development of methods of cryptograph, on the one hand, and cryptanalysis, on the other. A good deal of these developments has obviously remained a secret. However, what is already openly known about the science of cryptanalysis (compare, for example, Gaines, 1956; Kahn, 1967; Sinkov, 1968) can leave little doubt that if a coded message is long enough, and any deviation from randomness is detectable in it, it stands a good chance of being cracked.

Such developments have left little doubt also that if there are intelligent beings in the world, and if we ever receive that which we will be able to recognize as messages, we will very likely crack the messages and the languages (Wooster, 1966).

At this point, let me introduce a notion which has developed in the context of information theory. This is the notion of "bound" information, and the distinction between "bound" and "free" information. Presently, I will discuss the foundation paper of information theory by Leo Szilard in greater detail, but for now let me consider only the product of some of the considerations which emerge from Szilard's thought. Leon Brillouin (1962), drawing heavily on the thought of Szilard, has stressed the distinction between free and bound information. When information is free, it is as it exists in the mind, as mental, and quite distinct from information as bound in the tissue of the brain, or the movements of the muscles of the mouth, tongue, and lungs, or the electrical impulses in the telephone system. When a person who has information would transmit it, he puts it into bound condition. Brillouin writes: "he tells a friend about it in English, say, and the information is now bound; it has been transformed into sound waves, or electric pulses, or some other physical disturbance which may be used for communication" (p. 155).

The phenomenon of bound information is commonplace enough. We bind information into physical form, just as I am binding my thought onto this piece of paper which is in front of me and the ink of the typewriter ribbon! Or, one can bind various kinds of information onto various electronic phenomena and thereby transmit information or store it. Or we might bind information into durable stone as the Code of Hammurabi or the Rosetta Stone which can last a couple of thousand years.

The various examples of cracking of hieroglyphics and the like all attest to the possibility of being able to determine the third world features, such as free information, from bound information even when the language is not available. That is, it is possible for intelligent human beings facing bound information to be able, facing bound information, both to detect the code and the information in the encoded form. That is, when information is bound, it may carry within the bound condition not only the message, but also the information for decoding the message. When the bound message also contains within information sufficient for its decoding as well, such a bound message might become available to an intelligent being in the absence of other forms of continuity.

Language is primarily a third world phenomenon wherein, for example, we may in English say "horse" and in German say "Pferd" where both are expressions of something in the third world. While both "horse" and "Pferd" mean horse, the horse that is meant is expressed by "horse" and "Pferd." I may, for example, never mean an actual horse if I were to begin a story for my child with "*once upon a time* there was a man who had a horse…" The meaning is evident, but the horse is not an actual horse.

## The Reality of Fiction

We may in this context of "Once upon a time…" consider the general question of the "reality" of fiction. Consider the play *Hamlet* attributed to one William Shakespeare. There exists a baptismal record and other evidence that a certain William Shakespeare dwelled in the flesh on this planet for a period between 1564 and 1616. There is reason to believe that a person's remains were buried in the parish at Stratford. There is also ample evidence that this person, William Shakespeare, was the author of works that are linked to his name. On the contrary, there are a number of studies, including one by Mark Twain (1909), which suggest the possibility that the work was by someone else and that William Shakespeare put his name on it. Among the doubters was Sigmund Freud. Freud was an ardent reader of Shakespeare, whose work he began to read when he was eight years old. He frequently quoted Shakespeare. At one time, he suggested that Shakespeare was French and that the name Shakespeare was a corruption of Jacques Pierre, a notion he had gotten from Professor Gentilli of Nervi. At another time, he urged Ernest Jones to do a study of the interpretations that made Francis Bacon the author of the work, and to contrast these interpretations with psychoanalytical ones. Later in his life, Freud seriously entertained the idea that the real author of the play was the Earl of Oxford (Jones, 1953, pp. 21–22).

There is no reason to believe that *Hamlet* was intended to be other than fiction. There is reason to believe that there was a historical Hamlet, a prince of Denmark written off in twelfth century history of Denmark by Sexton Grammaticus, and the story was retold in Francois de Belleforest's *Histores tragiques* published in 1570. On the contrary, however much the author may have made use of such historical aids to help him in his literary labors, the play is nonetheless clearly intended as a work of fiction, and the personality of the hero is manifestly the product of creative writing.

The play is about a young man who is charged by the ghost of his dead father to avenge his father's murder. Hamlet *hesitates*. As one reads or watches the play, one continues to ask why Hamlet hesitates. As one reads the play, or watches its performance, one continues to ask why Hamlet hesitates. The question has been the topic of extensive discussion and speculation. But let us ask a different question from the one about Hamlet's hesitation. Our question is *what* are the people who are discussing the reasons for Hamlet's hesitation talking *about*? Or, what is the object of investigation which engages these people? If we can identify the object of investigation, we may get a better idea concerning what the object of interpretation may be in general.

Consider Freud's contribution to the long-standing debate about Hamlet's motive. In *The interpretation of dreams*, Freud writes

> What is it, then, that inhibits [Hamlet] in fulfilling the task set him by his father's ghost? The answer… is that it is the peculiar nature of the task. Hamlet is able to do anything – except take vengeance on the man who did away with his father and took his father's place with his mother, the man who shows him the repressed wishes of his own childhood realized. Thus, the loathing which should drive one to revenge is replaced by self-reproaches, by scruples of conscience, which remind Hamlet that he himself is literally no better than the sinner whom he is to punish. Here I have translated into conscious terms what is bound to remain unconscious in Hamlet's mind (Freud, 1953/1900, p. 265).

Thus, according to Freud, Hamlet is possessed of an Oedipus complex. Charged to punish someone who has killed his father and had sexual intercourse with his mother, Hamlet hesitates. For to condemn these acts is to condemn himself and his own deeply unconscious childhood wishes. But we could ask Freud – what childhood can one possibly be referring to when one speaks of Hamlet's wishes of his childhood realized?

What "unconscious in Hamlet's mind" can one possibly refer to when Hamlet is only a fictional character (made out of pen, ink, and paper)? There is no actual Hamlet, and actual childhood. If there is an unconscious, it could not be the unconscious of Hamlet. It might be the unconscious of the author or the unconscious of the reader. But certainly, there is nothing to Hamlet except Hamlet of the text.

Yet there is something objectively interesting, tenable, cogent, and possibly true in Freud's interpretation. This is the case in spite of the surface ridiculousness of a childhood Hamlet, who has no other existence but that of a young adult in the piece of fiction. Even though we know that Hamlet is only a "paper doll," as it were, there is some kind of reality being addressed by Freud.

Consider the questions of *testing* such propositions about motives, childhoods, and the like of fictional characters (Jones, 1910). The matter becomes all the more

interesting when we ask whether there is any sense in which such interpretations as offered by Freud can be *tested.* Suppose we have two divergent "explanations" of the behavior of a fictional person. Is there any reasonable way of proceeding to choose from among them? Certainly, one could argue that if such and such were the "case" of the motives, unconscious, education, childhood, etc., of the fictional character, then the text of the play would have to be quite the way it is, or different from the way it is. Ernest Jones, in his elaboration of Freud's explanation of Hamlet's behavior, compares the Freudian explanation with explanations that others have given. For example, Goethe suggested that the reason for Hamlet's hesitation was that Hamlet's reflective powers had been overdeveloped and this resulted in a paralysis of conduct. Now if the play should show that the character generally engaged in decisive action, then that might reduce the cogency of Goethe's explanation. Such was the nature of Jones' argument:

> He [Hamlet] shows no trace of hesitation when he stabs the listener behind the curtain, when he makes his violet onslaught on the pirates, leaps into the grave with Laertes or accepts his challenge to a fencing match, or when he follows his father's ghost on to the battlements; nor is there any lack of determination in his resolution to meet the ghost… On none of these occasions do we find any sign of that paralysis of doubt…On the contrary, not once is there any sort of failure in moral or physical courage except only in the matter of revenge… Hamlet's attitude is never that of a man who feels himself not equal to the task, but rather that of a man who for some reason cannot bring himself to perform his plain duty (pp. 77–78). [In a footnote Jones concurs with the judgment that Hamlet did not have the king in mind when he committed his deed.]

Clearly, if it is possible to "test" – at least in the sense of weighing the evidence – so as to make one explanation more tenable than another – there exists a sense in which the nonactual motive and the nonactual childhood of Hamlet must be real.

I do not find it absurd at all that one might meaningfully discuss Hamlet's motives including his unconscious Oedipus complex going back to the events of his childhood just as I am fully aware that in the actual sense, there never was such a Hamlet except in the text. Of course, one obvious suggestion is that the object of our discussion of childhoods and Oedipus complexes and the like is those of William Shakespeare or whoever wrote the play. But frankly that does not honor the genius of William Shakespeare sufficiently. After all, Shakespeare was capable of creating characters of numerous kinds which need not have reflected his own personality and experiences in the limiting sense of this suggestion. Hamlet is Shakespeare's *creation*. But as creation it has an independent existence of the author just as a building comes to have an independent existence of its architect, or even as the law of uniform acceleration of falling bodies has an existence independent of Galileo.

The character Shakespeare created, represented in only a handful of lines in the play, is then so full as to allow interpretation of motives and even childhood events which are not literary depicted in the play. Having been created, Hamlet allows that he be analyzed in much the same way as the human personality – which is perhaps also a creation.

Dwelling a little longer on the matter of the independence of fictional characters from their authors, I will mention one dealt with by Dorothy Sayers, author of the

Lord Peter Wimsey detective stories, in a book called *The mind of the maker* (Sayer, 1941). She writes:

> "All characters from the most important to the least, and from the best to the worst, must express some part of the maker's mind if they are to be a living creation; but if all express that mind in an identical way, the work as a whole becomes dull, lifeless, and untrue." Continuing, she compares the process to parenthood. "While the parent is wholly responsible for calling the children into being, and can exercise a partial control over their minds and actions, he cannot but recognize the essential independence of the entity that he has procreated" (p. 63).

While she rejects notions like that of a spirit hand coming and guiding a passive author, as has been claimed by some authors, the phenomenon of the character of a novel "taking over" in course of writing fiction is very real. She indicated that while it is important to recognize that the writing of fiction entails craftsmanship on the part of the author,

> Nevertheless, the free will of a genuinely created character has a certain reality, which the writer will defy at his peril. It does sometimes happen that the plot requires from its characters certain behavior, which, when it comes to a point, no ingenuity on the author's part can force them into, except at the cost of destroying them (p. 67).

The experience of a character thus "taking over" is forcefully expressed by Dion Fortune in the prefatory remarks she makes about her novel *Moon magic* (Fortune, 1972), after she had written *The sea priestess*:

> It has been said that when a novelist imagines a situation he brings it to pass. Be that as it may, when I imagined the character of Vivien Le Fay Morgan, or Lilith Le Fay, as she variously called herself, I brought into being a personality, and in the second book in which she figures – the present volume – she is very far from being a puppet in my hands, but takes charge of the situation.
>
> Any fiction writer knows that characters can "come alive," and that if they fail to do this, the resultant novel is a pasteboard affair …. The truly creative writer records the dialogue he hears his characters using…. (p. 9).

Referring to the previous novel in which the character of Lilith Le Fay was first expressed, she wrote, "After the conclusion of *The sea priestess* she would not lie quiet in her grave, but her ghost persisted in walking. It walked to such a good purpose that it forced upon me the writing of this book."

She indicates that she started the book six times but scrapped all she had written:

> Then finally I decided to tell the story in the first person, and Lilith Le Fay took charge.
>
> …I had not the haziest idea of the plot, and had to write the book in order to find out…

As the author Dion Fortune stands back and looks at the work as though it were completely alien:

> It is exceedingly difficult for me to judge of its merits and circumstances. I have not a very high opinion of it as literature, but it is certainly a psychological curio. It contains, moreover, an amount of very odd lore, much of which I did not know anything about until I read it in these pages (p. 9).

If we allow this kind of thinking as having some validity, it is then that the writer and author might be usefully distinguished. For Shakespeare, the writer certainly created Hamlet, the personality. But in a very important sense, it was Hamlet who dictated, composed, spoke, and said the lines attributed to Hamlet in *Hamlet*. The fact is that we ordinarily find it both useful and unobjectionable to make inferences about motives and personality of the author from behavior, from visible movements of the human flesh. We make such inferences from the traces of the movements of the human flesh that remain on paper. And while the fleshy movements of a copyist may be intermediate, it is only about the personality of the author that we make such inferences, not about the copyist.

And similar to the law of uniform acceleration of falling bodies that *informs* the fall of actual bodies.

Indeed when we think about human beings and personality and especially of the influence of human beings upon each other and on history, one is forced to take the position that the *actual* fleshy being that existed within a skin envelope tends to fade in importance, compared to the personality which was authored and which was itself the author. Thus, for example, the impact of Napoleon on subsequent history was great. However, that which had the impact was not so much Mr. Napoleon wrapped in his skin envelope, but rather the Napoleon that Napoleon was partly the creator of. Certainly, the same can be said about the impact of Biblical characters on subsequent history of the world. There is no evidence of a historical Moses except in the Biblical texts available today, which are at best copies of copies hopefully more or less accurate. If we follow the Biblical narrative, Moses must have lived somewhere around the thirteenth century BCE. Contemporary Biblical scholarship dates the earliest documents for the Bible from around the tenth century BCE. Thus, the Moses who has influenced and may continue to influence the world; the behavior of people; the ethics; the laws; the concrete fate of the Jewish, Christian, and Islamic peoples; etc., may have had no more actuality than Hamlet. And certainly from the point of view of what is clearly evident influence, there is little to indicate an influence of the flesh and blood Moses, whose, if the Biblical narrative is to be believed, remains rested somewhere around Mt. Pisgah in Transjordan from which Moses viewed the promised land before his death (Deuteronomy 34:1).

The universe in which Hamlet and Moses are tenants is certainly not inconsequential. One further example may be cited to indicate the reality of the fictional world. Wernher von Braun, the German engineer who was largely responsible for the early work on rocketry and space travel, has indicated that his interest in these matters was directly precipitated by the seeing of Fritz Lang's movie on space travel *Frau im Mond* (1928). Von Braun was the person largely responsible for the development of the V-2, about 1,000 of which were fired against London subsequent to their becoming operational in September 1944. Wernher von Braun's testimony about the effect of the film on him leaves little doubt but that had he not seen the film, it is not likely that his interest in rocketry would have been awakened. Certainly, the film by Lang, or rather which was indicated by the film, has to be considered as part of the "cause" of the destruction wreaked by the V-2 bombing of London.

## Durkheim's Interpretation of Social Fact

The question of interpretation is inescapably intertwined with the question of causality. The way in which we understand how events are determined is certainly entailed in any interpretative activity that we may engage in. One of the historical problems in connection with determination may be roughly formulated as to whether determination is upward or downward.

The common scientific view, informed particularly by the history of the natural sciences, is that determination is always upward. The core doctrine associated with this view of determination as upward is atomism, the view that the universe is composed of a very large number of minutes particles, that inexorable lawfulness applies to the behavior of these minute particles, and that all of the various forms and phenomena that appear in nature are resultants of the lawful behavior of these particles. This atomism had, at least since the seventeenth century reintroduction of it through Gassendi, and its marriage to mathematics and mechanics, a particularly successful career in the natural sciences. However, in the twentieth century, especially with the introduction of the Heisenberg principle of indeterminacy associated with small particles, the total adequacy of such atomism has been questioned even within the context of the natural sciences.

In biology, on the contrary, where the value of atomism has been less apparent, various forms of holism, the view that events must be considered as more than the rearrangement of atoms; organicism, namely that organismic existence entails principles which are beyond the laws of physics and chemistry; or vitalism which seeks to identify a special life principle in living things have prevailed. These views characteristically take determination of events as downward.

Perhaps the greatest challenges to the idea of determination as upward arises in connection with any organized human enterprise as exemplified, for example, in architecture. For here, there is clear reason to believe that much determination takes place in the downward direction. In a certain sense, it is the whole house's nature that determines every event associated with the construction process, determining what shall be purchased, what telephone calls should be made, and what nails shall be hammered. Now it is certainly true that in this process, there is a full taking "account of" variety of constraints and resources, including the relevant laws of physics and chemistry. But the latter are only one set of things among the variety of constraints and resources that would be involved in the building of any structure.

The kind of downward direction of determination is certainly characteristic of every general who ever fought in a battle, or any engineer who ever designed and built a factory. The former is particularly interesting and will presently be discussed in greater detail. It is this kind of downward direction of determination that Karl Marx took as the essential feature of labor. In *Capital* (Marx, 1967), he writes:

> We must presuppose labor in a form that stamps it as exclusively human. A spider conducts operations that resemble those of a weaver, and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality.

> At the end of every labor-process, we get a result that already existed in the imagination of the laborer at its commencement (p. 178).

One might be tempted by these examples to consider downward determination as somehow uniquely associated with deliberate conscious processes. Before we come to such a hasty conclusion, let us consider what I would take as one of the most important contributions to this issue, made by Emile Durkheim in his classical study of suicide.

Durkheim (1951) takes it as his task to demonstrate the existence of what he calls *social fact*, a characteristic of *groups* in society, not derivable from the facts associated with the individuals composing the group. His effort is to establish a subject matter for sociology which is not the resultant of individual psychology. The suicide rate of a group is, to use this term that Durkheim uses repeatedly, *sui generis*, of its own kind. It would seem at first, examining the act of suicide naively, that it is an utterly individual action. It is an act that is initiated and carried out by the individual without any conspicuous "social" intercourse or cooperation. It is as utterly a private, nonsocial act as one might be able to imagine. Again naively, if one were interested in understanding it, the way to approach would be through some kind of individual action accounting for the total number of voluntary deaths in the population. They may perhaps cause this or that separate individual to kill himself, but not give the society as a whole a greater or lesser tendency to suicide (p. 51). It might be worthwhile to quote Durkheim at some length to show the depth of his thought about the independence of the social fact from the atomic detail under it. Durkheim (1951) writes:

> Collective tendencies have an existence of their own; they are forces as real as cosmic forces, though of another sort; they, likewise, affect the individual from without, through other channels. The proof that the reality of collective tendencies is no less than that of cosmic forces is that this reality is demonstrated in the same way, by uniformity of effects. …Since, therefore, moral acts such as suicide are reproduced not merely with an equal but greater uniformity [than say natural events such as number of deaths], we must likewise admit that they depend on forces external to individuals. Only since these forces must be of a moral order since, except for individual men, there are no other moral forces of existence in the world but society they must be moral. …The important thing is to recognize their reality and conceive of them as a totality of forces which cause us to act from without… So truly are they *sui generis* and not mere verbal entities that they may be measured, their relative sizes compared, as is done with the intensity of electric currents or luminous foci… Thus the basic proposition that social facts are objective… which we consider the fundamental principle of the sociological method, finds a new and especially conclusive proof in moral statistics… Of course, it offends common sense. Yet this understanding must be reached. If there is such a science as sociology, it can only be the study of a world hitherto unknown, different from those explored by the other sciences. This world is nothing if not a system of realities.
>
> To be sure…society has no other active forces than individuals; but individuals by combining form a psychical existence of a new species, which consequently has its own manner of thinking and feeling. Of course, the elementary qualities of which the social facts consist are present in germ, in individual minds. But the social fact emerges from them only when they have been transformed by association since it is only then that it appears. Association itself is also an active factor productive of special effects. In itself it is therefore something

> new. When the consciousness of individuals, instead of remaining isolated, becomes grouped and combined, something in the world has been altered.
>
> This proposition could only be opposed by agreeing that a whole is qualitatively identical with the sum of its parts, that an effect is qualitatively reducible to the sum of its productive causes; which amounts to denying all change or making it inexplicable (pp. 309–311, *brackets added*).

It is unfortunate that some contemporary sociologists have allowed themselves to be influenced by Durkheim's statistical methods, and have emulated him in that, while at the same time they have tended to ignore the deep insight into the character of determination indicated by him. It is clear that Durkheim would in no way allow that these phenomena, these regularities he observed, be interpreted as the resultants of atomic forces and events. They are things *sui generis*. They are phenomena associated with aggregates as such, and not the resultants of features associated with each member of the aggregate. They are collective tendencies which have an existence of their own, having a downward determinative effect on individual suicide, rather than the reverse.

## Warfare

Warfare is perhaps the ultimate pragmatic theater. It involves survival – life and death in the most critical manner. If we are to accept the pragmatic criterion at all for what is true and what is false, it is of some value to run our basic assumptions concerning what is true and what is false through these kinds of tests that considerations of warfare might suggest.

In recent decades, the power and effectiveness of guerilla warfare have been amply demonstrated. The successes of Lawrence, Mao, Tito, Castro, Ho Chi Min, and Vo Nguyen Giap and many of the successes of World War II resulting from Churchill's conviction of their importance have been associated with guerilla forces and operations. Modern guerilla warfare had its origins in the American Revolution, in which the colonists schooled in their fights with the Indians, and used guerilla operations against British redcoats. The French losses under Napoleon in Spain and Russia were extremely heavy.

Guerilla operations are characterized by their lack of the usually physical resources and the organizational resources for command, control, and communication. Improvization, deception, and intelligence play a much more significant role. The latter, being brought forth by default of more conventional resources, has, at least in the minds of some military thinkers such as Sir Basil Liddell Hart, the famous British military historian and strategist, been identified as the major factors in virtually all victories. Liddell Hart emphasized in his various writings that the "indirect approach" in warfare, in which one aimed at dislocating the enemy, was the essential feature of all strategy.

> Throughout the ages, the main feature of military victory has consisted of such indirectness as to ensure the opponent's unreadiness to meet it. The indirectness has usually been physical,

> and always psychological….More and more clearly has the lesson emerged that the direct approach to one's mental object, or physical objective, along the "line of natural expectation" for the opponent, tends to produce negative results…To move along the line of natural expectation consolidates the opponent's balance and thus increases his resisting power…In most campaigns the dislocation of the enemy's psychological and physical balance has been a vital prelude to a successful attempt at his overthrow (Liddell Hart, 1967, p. 24).

Mao took inspiration from Sun Tzu, a Chinese general of the fourth century BCE. Sun Tzu advocated tactics of surprise, secrecy, deception, the guarding of intelligence, and the gathering of intelligence, the basic features of the mind-to-mind conflict, of which any war, no matter how much hardware may be involved, essentially consists. According to Sun Tzu:

> All warfare is based on deception. Therefore, when capable, feign incapacity; when active, inactivity. When near, make it appear that you are far away, when far away, that you are near. Offer the enemy a bait to lure him; feign disorder and strike him. When he concentrates, prepare against him; where he is strong, avoid him. Anger his general and confuse him. Pretend inferiority and encourage his arrogance. Keep him under a strain and wear him down. When he is united, divide him. Attack where he is unprepared; sally out when he does not expect you (Sun Tzu, 1977, pp. 66–69).

The strong influence of Sun Tzu is evident in Mao's various military writings. Thus, for example, in *On protracted war*, Mao, openly citing Sun Tzu dictum, "Know the enemy and know yourself, and you can fight a hundred battles with no danger of defeat," writes,

> …deliberately creating misconception for the enemy and then springing surprise attacks upon him are two ways – indeed two important means – of achieving superiority and seizing the initiative… There can never be too much deception in war….In order to achieve victory we must as far as possible make the enemy blind and deaf by sealing his eyes and driving his commanders to distraction by creating confusion in their minds (Mao, 2001/1938, pp. 164–166).

If we allow that warfare might be a kind of critical test of what we mean by reality, it becomes evident that there are two kinds of reality which are central. The first is the reality of mentation; the second the reality of possibility, with or without mentation. Several major canons of method associated with what is often considered to be the scientific method have to be either transcended or circumvented.

Consider possibility in connection with warfare. The major preoccupation of the strategist is with possibility, the possibility that the enemy or potential enemy might overpower him, or vice versa. The major concern of the strategist is what might occur in some future battle or war; and the immediate, the evident, the actual, and the empirical have value principally with respect to the possibilities which might become realities.

Indeed, it is interesting to consider what the nature of conflict may be. Conflict can only be understood by referring to possibilities. Contradiction can exist in the realm of possibility. In a battle there are essentially two possibilities, namely, that A shall prevail over B or that B shall prevail over A. These are in contradiction. The conflict is precisely when the contradiction among possibilities is resolved by one possibility being actualized that the conflict is resolved.

Now it is certainly the case that actuality certainly provides the resources and constraints on possibility. Insofar as possibility emerges out of actual resources and is limited by constraints of actuality, possibility is inherent in actuality. But possibility has an existence nonetheless in a realm which is outside actuality. For the warrior, this possibility outside of actuality is very important for it is often that this realm is the very realm which is critical to him in connection with warfare. It is precisely in the realm of such possibility, *some of which he may even create*, that the strategist functions. The design of any stratagem constitutes the creation of possibility. Now, for sure, the design of any stratagem has to be based on the assessment of actualities, especially the identification of the actualities for what possibilities they allow, and what possibilities could not be actualized. When such a stratagem has been designed, even if it has no existence anywhere except in the mind of the strategist, then it takes on a special reality for the strategist, both in himself and in the mind of his opponent. In no way can the warrior afford the luxury of a relentless physicalist position, the position that allows that there is no reality except material reality. For the stratagem, which is clearly mental, and which has no physical reality, except that which may be granted by some esoteric speculation about the nature of the brain for which little direct evidence exists – is clearly something else than physical reality.

One of the most interesting characteristics associated with military thinking is the penchant manifest in the warrior's vocabulary of verbs which are converted into nouns, or nouns which are suggestive of actions. Command, control, and communication, the famous three Cs of the contemporary military rhetoric, are examples of verbs made into nouns. And capability and vulnerability are examples of nouns which are suggestive of actions. This particular usage expresses the need that military thinking has of going from the actual to the possible. Command, control, communication, capability, and vulnerability all bespeak such a movement from the actual to the possible.

Consider the central military concept of *danger*. In actuality there is only, say, a broken step on a staircase, or more relentlessly, a piece of wood having such and such a shape and so on. From a relentlessly physicalistic point of view, *there is no danger to be observed*. The danger is only in the realm of the nonactual possibility to the effect that someone may stumble and fall because the step is broken. In no way can a person involved in warfare afford the positivistic luxury of denying the reality of danger, because the danger is not present in the actual world and exists only in the realm of possibility.

Neither can the military person afford the luxury of denying the reality of *consciousness* of the danger. Consciousness is a critical reality. For it is the lack of consciousness that makes one vulnerable; lack of consciousness of danger is the source of vulnerability. The discipline of the military mind is precisely to increase the mindfulness or consciousness of danger. It is often his aim to increase his own consciousness while confounding the consciousness of his enemy. Any set of notions that discredit the reality of consciousness in him would only operate to increase the vulnerability of the warrior. And any set of notions which discredit the reality of consciousness in the enemy reduces the warrior's own capability.

A particular form of danger which the warrior's mentality is particularly concerned with is threat. Threat has two components. One is the capability of the enemy, and the other is one's own vulnerability. The second is the intention of the opponent. If the potential opponent has great capability but only "good" intentions, the threat is minimal. If the potential opponent has "bad" intentions but little capability, there is little threat. There is threat only when the potential enemy has both capability (with respect to our vulnerability) and hostile intentions that may be threatened. What is critical is intention. Now it is interesting that intention, as purpose, or the Aristotelian final and formal causes have been essentially ruled out of existence in many of the versions of what constitutes the proper scientific method. So we have a situation in which the notion which a warrior would take absolutely critical in connection with the assessment of threat is said to have no acceptability under the canons of method which are commonly regarded as essential to science.

## The Circle

The circle has been one of the most abiding preoccupations of our civilization. In a most abstract form, it represents the distinction between the inner and the outer which characterizes virtually the very aspect of human existence. It is a symbol onto which people throughout the centuries have projected their deepest concerns, the nature of man, of God, and of the cosmos (Poulet, 1966). The awareness of the circle and its properties goes back at least to ancient Egypt, to the time of the Rhind papyrus in the British Museum, from before 1700 BCE, and the Golenishev papyrus in Moscow from about 1900 BCE. At that time, there was already a reasonable approximation of pi by taking 8/9ths of the diameter and squaring it, giving 3.16 (compared to 3.14159…) ([8/9 (2) (*r*)] squared = 3.1622). Archimedes showed in his *Measurement of the circle* that the corresponding value was less than 3 10/70 (3.14285…) but greater than 3 10/71 (3.14084…).

In the sixth century BCE, the Pythagorean School came into being which held that the universe is ultimately mathematical in character, a view similar to the often repeated contemporary view that all scientific information are ultimately quantitative. This view was integrated into Plato's views which essentially rest on the distinction between the sensory, everyday, world and the world of true reality which was only apprehensible by the intellect. This intellectual apprehension is better understood as recollection than acquisition as manifest in the often-cited passages of the *Meno* in which Socrates, by careful questioning, manages to evoke a mathematical proposition from a young man who had not "known" it before.

This Platonic ideal world in Plato is independent of the existence of particular human beings. The relationship of, say, the circumference of the circle to its diameter, pi, is quite independent of its being consciously apprehended by any person, and would certainly be the case even if no one knew it. If we add contemporary evolutionary appreciation to this, we would have to say that the ratio of the circumference

to the diameter of a circle being pi predated the advent of human life on earth, and thus could not have been dependent on human life. While Plato clearly attempted to establish the objectivity of such mathematical propositions, at the same time, the issue has always been confounded to some degree by the kind of psychologism, and therefore human contingency, which was maintained through the doctrine of recollection. Indeed one of the most interesting developments in the mathematics of the nineteenth and twentieth centuries was the work of Lobachevsky, who, with Bolyai, was the founder of non-Euclidean geometry. Lobachevsky was partly reacting to Kant's transcendental idealism, which allowed space, time, and extension as both a psychological possession and a characteristic of the world. Lobachevsky, in reaction, felt that even space was a posteriori, and based on experience.

I believe that it is of value to distinguish between two types of question, such as, "does the circle's character exist independently of the existence of human beings?" and "is there some a priori correspondence between human mentation and the world of mathematical reality?" I believe the answer to both these questions is affirmative. Yet I also believe that there is confusion if we do not distinguish between the questions, and this has to do with considerations we advanced concerning Popper's third world.

Is it true that the ratio of the circumference of a circle to its diameter is a little bigger than three, or pi? The answer is "yes." It is "yes" today and presumably when human life first appeared, and when about four billion years ago the first organic molecule appeared. It is even "yes" for any hypothetical interval in the long history of the universe during which, say, there were no circular objects. Presumably, the formula did not fail during that interval because it did not exist in the physical world. It existed in the third world.

In other words, it is objectively the case that the circumference of a circle is equal to pi times the diameter. Furthermore, it has always been objectively the case that the circumference of a circle is equal to pi times the diameter. It was in this *region* that Plato identified and of which he was so enamored.

What we need to recognize is that within this region, there are *other kinds of tenantries*. Some, like songs and Hamlets and designs for machines, are created by human beings. Some, like the laws of biology (including Darwin's natural selection), are there to be discovered by human beings, but would not appear to have the kind of tenancy that $c = \text{pi}\ d$ would appear to have.

But what about the second question, as to whether there is some kind of special relation between human mentation and the world "outside" of the mind (note that I cannot avoid the use of the circle metaphor even here). I think the answer is patently affirmative. It is not affirmative in the sense of a Berkeley or the like in which the "outside" is constructed, and therefore extant in every instance. In some instances, it is such as when, say, Shakespeare created Hamlet and thereby created a very real presence in the world which has influenced other events. In some instances, we discover things in the world like the law of uniform acceleration of falling bodies, or that $c$ equals pi $d$, or that the earthworm has a certain anatomy, or that Napoleon influenced the world by promoting the metric system

by making it legally compulsory in 1801, or that the visiting baseball team is always first at bat.

The fact of the matter is that in the most general terms, the universe as a whole *is both vital and mentating*, and its existence as vital and mentating is considerably greater than Platonism would allow. The historical problem associated with Platonism is simply that it was too narrow and did not allow itself to become as the general as the reality would have warranted.

The human evolution of human beings, as beings within the world, partakes so uniquely in the essential features of the universe as a whole, and a phenomenon which certainly requires diligent investigation. The grasp of that phenomenon, however poorly it was understood, is to the credit of all those in history, which we often refer to as mystics, who dwelled on the biblical assertion that man was made in the image of God, and who conceived of a parallel between the characteristics of man as a microcosm and the macrocosm of the universe as a whole.

## Interpretation and Biblical Exegesis

At this point, I will add some further considerations from the background in Biblical interpretation to enhance our understanding of interpretation more generally. I would also like to point to psychoanalytic interpretation as a kind of paradigm of interpretation, while at the same time remembering the possibility that psychoanalytic interpretation is itself rooted in the history of Biblical interpretation. In this context, the reader is referred to my *And they took themselves wives: The emergence of patriarchy in Western civilization* (1979).

Recall my consideration that the given is not necessarily "so," or the case. If we go to Freud's *The interpretation of dreams*, we note that the very subject matter, the dream, is particularly well suited for bringing this particular point up sharply because the dream is virtually the paradigmatic case of what is not "so" in the form in which it is given. In the dream, the given is the name of manifest content, which is patently not the case, by Freud. But then what is the case?

The essential task of Freud's work was to show that the dream is to be understood in terms of *processes involved in its formation*; that is, *what the dream is, is to be interpreted in terms of the creative processes which are involved in it.* Thus, what Freud sought to find out was the *dream work*. When it could be identified, then the dream stood as interpreted.

Above I cited the opening lines of the Bible, and I refer back to that again. The Bible's deepest concept is given in the opening words. The given world is to be interpreted through the creative process that is involved in it. Things are what they are, whatever they are, by virtue of the nature of their creation.

We have two major notions: first, events have meanings which may or may not be manifest, but which may be understood by interpretation. Second, the locus of meaning of what is the case is in the processes for formation of what is the case. This need not appear so strange. The assumption that the essential nature of things

is to be determined by identifying their *causes* characterizes the scientific enterprise. A cause is that which *produces* an effect. The whole scientific enterprise, insofar as the scientific enterprise seeks to identify causes, is an enterprise which would interpret what is given in terms of the processes involved in the creation of the given. That is the meaning of the scientific focus on the causes of things.

These notions unite the Biblical tradition with the scientific tradition within Western civilization. What we find in Freud is a very special kind of recognition, even if it may have been an unconscious recognition, that the modes, developed over history for the interpretation of the Bible, could be usefully transferred to the interpretation of human experience and behavior.

One of the most important features of Biblical exegesis has its roots in the contribution of Rabbi Akiva who had been a student at the Academy at Jabneh. Freud at one time spoke (in a letter to Jacob Meitlis) of the formation of that academy with great enthusiasm as "one of the most significant manifestations" of Jewish history (Meitlis, 1951, pp. 20–22). Freud also regarded the formation of the academy at Jabneh as a major factor in the subsequent history of the Jews "that kept the scattered people together" (Freud, 1996, p. 115). Akiva had a major hand in the composition of the Greek translation of the Bible by his student Aquila, the latter containing numerous traces of Akiva's exegesis.

Freud said that interpreted dreams are as Holy Writ. How does one interpret Holy Writ? Compare Rashi, interpreting in accordance with Akiva and called in the Jewish tradition the Prince of Commentators, and probably the most widely read commentator of the Bible among all the Jewish scholars. As an example, Rashi comments as follows to the writ in Genesis where God is reported to have said "let there be light." "The word 'light' is written without the letter *vav* so that now it is similar to the word 'curse.' This is because it is the day of the curse when the children get croup. This we have learned: on the fourth day they would fast, because of the croup that it should not befall the children."

But such a drawing from Biblical material on the part of Freud for the winning of psychological understanding is not a mere accident, for the methods of Biblical exegesis have been, from the very beginning, in a certain sense, psychological. Akiva dates from the first and second centuries. The fact of the matter is that the *methods of exegesis represented by Akiva and his school, and which were applied to the study of the Bible had a substantial prior history quite precisely in dream interpretation*. This is the thesis advanced by Lieberman (1950, pp. 47 ff.), in which he brings to bear very cogent evidence that the methods of Biblical exegesis had been first developed as a method for interpreting dreams.

The major feature of Akiva's exegesis is that every feature of the Bible had meaning. The Torah came from God. Therefore there was no redundancy. If anything was repeated, there was meaning to the repetition. Every seeming error in spelling was not an error. Rather the text was written in that way to indicate meaning. Even the seemingly decorative crownlets that certain letters traditionally have had meaning and were, therefore, subject to interpretation. According to this tradition, even Moses did not understand all the laws which he expressed, and that his mind was eased on some points of law as a result of the interpretations of Akiva (Finkelstein, 1962)!

The following from *The interpretation of dreams* shows, I think, without any doubt whatsoever, that Freud was participating in the tradition of Rabbi Akiva and drawing from it the following:

> Examples could be found in every analysis to show that precisely the most trivial elements of the dream are indispensable to its interpretation and that the work in hand is held up if attention is not paid to these elements until it is too late. We have attached no less importance in interpreting dreams to every shade of the form of words in which they were laid before us. And even it happened that the text of the dream as we had it was meaningless or inadequate – as though the effort to give a correct account of it had been unsuccessful – we have taken this defect into account as well. In short, we have treated as Holy Writ what previous writers have regarded as an arbitrary improvisation, hurriedly patched together in the embarrassment of the moment (Freud, 1953, pp. 513–514).

It is presumptuous to assert what the nature of the mysterium, that which lies behind the manifest, is, if indeed it is the mysterium. Yet there is a strategic question which is involved. Do we look for something which is more like a dead thing, or more like a living thing? Is it more like a person, or more like a beast or a plant? We can rarely avoid thinking such questions. At least we should recognize that we do and confront ourselves with consciousness about our own modes of thought. Now clearly the assumption behind exegetical thought is that which lies behind the given, and what is ultimately presumed to be the case, is a reality that is more like a person than it is a thing. That which lies behind the given is not only the creative, but also something which is creative as we generally know a person to be creative. This person has a name like persons generally have. This person operates on the basis of what he values. He abides through time quite independently of any events which are associated with matter. He is planful and has the power to execute his plans at will. He is a psychological being, a mentating being, who thinks and feels and wills.

St. Anselm had offered the ultimate argument for the existence of God, the ontological argument. The very idea of a perfect being implied its existence. I believe that Descartes in his famous "I think, therefore I am" essentially drew his proposition as a corollary from St. Anselm's ontological argument. If, as the Anselmian argument has it, even a fool has an idea of a being greater than any other being which could exist, such a being must exist. But if furthermore that being is one in whom existence and mentation are as inseparable as they are in the argument itself, then, for Descartes' *cogito*, I think, is itself proof that he is, being and not nonbeing, extant.

The human mind touches the mentation which is at once its origin and its lifeline in its own depth. This human mentation is also the necessary limit of where one can go in the interpretation process. In the same way as the tradition of Biblical exegesis had it that interpretation of the words of God in the text leads to God's meaning and into the ultimate origin of all things, so do we find Freud saying similarly: "there is often a passage in even the most thoroughly interpreted dream which has to be left obscure…. This is the dream's navel, the spot where it reaches down into the unknown" (Freud, 1953, p. 525).

I believe that there can be an enrichment of our appreciation of the nature of interpretation if we consider the notion of *power*. My desk dictionary offers a variety

of meanings of power: ability to do or act; capability of doing or effecting something; a particular faculty of body or mind; political or national strength; the possession of control or command over others; dominion; authority; ascendancy or influence; etc. Power has the characteristic of always being manifest in some sense. Like physical energy, it is dissipated precisely as it influences the manifest. It is known only by interpretation.

Personality is the most primitive form of power apprehended by human beings – these eternal strangers to the planet, as the characteristics of personality such as creating, valuing, abiding over stages of metamorphosis, planning, etc., are essential to any sensible notion of power. Thus, we find that the idea of God as depicted in the Bible, and associated with the interpretative enterprise, was hardly absent in the minds of the great founders of contemporary science. Indeed, they played a central role in their preoccupations. Newton's great contributions were made quite precisely in a theological context, however much contemporary mind might want to ignore that.

Newton's interest in the Biblical text was very deep. Indeed, he urged on his readers the study of Hebrew in order that they might be in a better position to understand and interpret the text.

> He that would understand a book written in a strange language must first learn the language, and if he would understand it well must learn the language perfectly. Such a language was that wherein the Prophets wrote, and the want of sufficient skill in the language is the main reason why they are so little understood (Newton, 1950, p. 119).

The convergence of the interpretation of the various phenomena of the given world and the interpretation of Biblical text was made explicitly by Spinoza:

> I may sum up the matter by saying that the method of interpreting Scripture does not widely different from the method of interpreting Nature – in fact, it is almost the same. For as the interpretation of Nature consists in the examination of the history of Nature, and therefrom deducing definitions of natural phenomena on certain fixed axioms, so Scriptural interpretation proceeds by the examination of Scripture, and inferring the intentions of the authors as a legitimate conclusion from its fundamental principles. By working in this manner everyone will always advance without danger of error – that is if they admit no principles for interpreting Scripture, and discussing its content save as they find it in Scripture itself – and will be able with equal security to discuss what surpasses our understanding, and what is known by the natural light of reason (Spinoza, 1679, p. 13).

The history of the Bible presents two phenomena which have always reinforced each other. One of these has been the inordinate care with which the Bible has been copied over the centuries, including a major apparatus of notes and countings of letters and words for guaranteeing accuracy of the Masoretes. The other is the inordinately huge body of interpretation associated with the text. It is partly because of the security that the readers had in the authenticity of the texts that they could permit themselves the license, as it were, to interpret quite freely.

Interpretation of the text is essential if one takes the text as *instruction*, or *commandment*, as the text itself indicates that it is, and as the Jews and others throughout history have accepted it. Within the Jewish tradition, there has always been a belief in the Oral Law, the law of the mouth, in addition to the Written Law.

According to tradition, when Moses was on Mount Sinai, God gave him oral instruction to help him in fully understanding what was contained in the written text. This learning was transmitted to Joshua who continued to pass it on. A written text of the Mishnah (derived from the Hebrew word *shanah*, to repeat, as contrasted with the Mikra, from the word *kara*, to read) was collected and edited by Judah ha-Nasi, who ruled Judea under Rome in the second and third centuries. This in turn gave rise to a most voluminous set of interpretations, the Talmud, which is essentially a report of the discussion of the Amoraim, the Jewish scholars who were active from about the third to the fifth centuries. The Oral Law and all the subsequent interpretations were the responses to both the changing conditions over many centuries when the Biblical text became the essential legal code and guide to daily activity sometime during the 1,200 years between the founding of the Kingdom under David and Judah ha-Nasi, and the centuries following. The text itself demanded interpretation in order to be applicable. The text contains numerous obscurities, contradictions, ambiguities, commandments of unspecified generality and applicability, and great lacunae, such as virtually nothing on the laws of marriage, which had to be responded to with interpretation (Freedman & Simon, 1977).

Related to the matter of taking instruction and interpreting instruction is perhaps the deeper need of *understanding* the meaning of the text, especially if one regards the text as having a divine authorship. In the book of Nehemiah (also the book of Ezra), we have an account of a set of events which has been interpreted as the beginning of another kind of interpretation aimed at increasing the understanding of the text. Some dozen years after Ezra had returned from Babylon,

> …and the Israelites were now settled in their towns, the people assembled as one man in the square in front of the Water Gate, and Ezra the scribe was asked to bring the book of the law of Moses, which the Lord had enjoined upon Israel…Ezra the priest brought the law before the assembly, every man and woman, and all who were capable of understanding what they heard. He read from it, facing the square in front of the Water Gate, from early morning till noon, in the presence of the men and women, and those who could understand; all the people listened attentively to the book of the law…. Ezra opened the book in sight of all the people, for he was standing above them; and when he opened it, they all stood. Ezra blessed the Lord, the great God, and all the people raised their heads and prostrate themselves humbly before the Lord. Jeshua, Bani…. expounded the law of God clearly, made its sense plain and gave instruction in what was read (Nehemiah, 8:1–8).

I order to enhance our understanding of the text, four basic types of interpretation have been identified. The four types or methods of interpretation have classically been represented by the acronym *pardes* (paradise) for *peshat*, the literal meaning; *remez*, hint, allusion, or implied meaning; *derash*, homiletical interpretation; and *sod*, secret, mystical allegorical meaning. Peshat and derash have historically been differentiated from remez and sod. The former were commonly and generally acceptable. However, the latter were regarded as dangerous, and to be limited only to those of demonstrated maturity and scholarship.

Historically, the effort to push probes deeply into the text sometimes reached what appeared to be to some outrageous proportions. Gematria is one such example. It consists of explaining words or phrases by assuming that the text is written in a code, and that the bringing to bear of the code on the text produces the hidden meaning.

In ancient Greece, Babylonia, and Palestine, letters were used to signify numbers. The Hebrew letters to this very day are sometimes used in that way, with the first letter of the alphabet meaning one, the second two, etc., and the later letters standing for larger quantities. Thus any word, by its sum, is a number. In the Hellenistic world, gematria was often used by dream interpreters. Early Gnostics identified the holy names Abraxas with Mithras, because the Greek scheme of applying numbers to the Greek letters made them both equal to 365, the number of days in the year. The *Baraita of 32 Rules*, a set of rules for the interpretation of the text which is frequently referred to by Rashi, allows gematria as the 29th rule. Thus the numerical value of Eliezer, Abraham's servant, is 318. In the 14th chapter of Genesis, the text tells of a great war in which Abraham was involved with 318 men under him. Thus, one may conclude that Abraham went to this war with only Eliezer at his side. The *Baraita of 32 Rules* also allows *notarikon* as a basis of interpretation, assuming that the writing in the text consists of acronyms, or similar constructions. This is the 31st rule. Thus, for example, the word nimreset, NMRZT, which means grevious (I Kings 2:8), stands for noef, adulterer, moavi, a Moabite, rozeach, murderer, zorer, oppressor, and toevah, despised. The 30th rule is atbash, which involves substituting the alternate sides of the alphabet for each other: the first letter substitutes for the last letter, the second letter substitutes for the next to last letter, the third letter substitutes for the third to last letter, etc.

However outrageous these may appear, they serve to highlight some features of the interpretative process. It points to *codification* as the intermediate process between what is the case and what is given. The given is the word in the text. However, the assumption is that something else which is the case has generated the word in the text in a systematic way that is indicated by the code. Thus, if one has the code, and the code *allows us to operate backward*, we may then go from the given back to that which is the case. What makes this kind of procedure outrageous is only that we have little confidence in the code. But if we had reason to believe that the code was actually involved in the generation of the text, there would be nothing outrageous about using the code in interpreting the text.

Lines of thought with respect to interpretation have characteristically bifurcated with *peshat*, plain meaning, and *derash*, homiletics, to one side; with *remez*, hint, and *sod*, secret, to the other. Although the division is not all that neat and without dramatic exceptions and overlap, nonetheless, I feel that for deepening of our understanding at the present time of interpretation, it is better to consider more closely the latter two, remez and sod. For this purpose, it will be of value to draw attention to two major documents within the Jewish mystical tradition, the *Sefer Yezirah* and the Zohar.

A mystical document, the *Sefer Yezirah*, may be understood as a fulfillment of a notion which was to be found in the more classical and conventional homiletic interpretation, the *Midrash Rabba*. According to *Genesis Rabbah*, the oldest and most classical Midrash, which comes to us from around the sixth century, the view is presented that the Torah predated the universe and was used by God in the creation of the universe as an architect uses plans and diagrams:

> The Torah declares: I was the working tool of the Holy One, blessed Be He. In human practice, when a mortal king builds a palace, he builds if not with his own skill but with the

> skill of an architect. The architect moreover, does not build it out of his head, but employs plans and diagrams to know how to arrange the chambers and the wicket doors. Thus God consulted the Torah and created the world… (Midrash Rabba, Vol. 1, p. 1).

The *Sefer Yezirah* is an account of creation. Although the work is very short, it is filled with mathematics-like complexities. It consists only of some 1,500 words in six chapters, suggestive of the six days of creation in the Biblical narrative. Each chapter is composed of numbered sets of propositions, each called a *Mishnah*, as are the sections of the Oral Law. Its style is suggestive of a treatise on mathematics or logic. Some of the inherent complexity must be lost in translation, in that the detailed properties of letters, common roots of words, and precise placement of letters and words are significant features of meaning. Thus, *oneg* and *nega*, one meaning pleasure and the other pain, are actually made of the same three letters of the alphabet. The book opens with the assertion that there are "32 wonderful paths of wisdom" out of which the universe was created. These are the 22 letters of the Hebrew alphabet and the 10 sefirot. The first *Mishnah* has a play on the root SFR which also means book. God created his world by three *sefarim*, say, three signs: by *sfar*, say border; by *seref*, say letter; and by *sippur*, say number. The first chapter deals with the *sefirot*. The remaining five chapters deal with the letters (note that in Hebrew, the sounds of F and P are designated by the same letters). By an elaborate system of combinatorials and classifications, a linguistic, existential, cosmological, astrological, and moral universe is sketched out. It is something as though someone were to have written the whole treatise based on pointing out things like the word "level" in English, a word whose physical characteristics allow it to be used as a level; or hinting at deep meanings because veil, live, vile, and evil are anagrams; and further that the addition of one letter d allows devil. The *Sefer Yezirah* has been the object of scores of commentaries. A Latin translation was printed in 1552 and another Latin edition was printed in 1652. Similarities between the thought expressed in the *Sefer Yezirah* and the writings of Leibnitz and Spinoza are easily demonstrable.

Let me pause to prevent the impression that I am involved in antiquarianism without contemporary relevance.

## Popper's Third World and Natural Law

In considering interpretation, it is proper to inquire concerning the *object* of interpretation. When one interprets what is one talking *about*? What is the object of interpretation in the sense of what is the object in the subject–object relationship which interpretation may be said to be?

Karl Popper (1972) has proposed a term the "third world," which I found very useful for beginning to identify what may be taken as the "object" of interpretation. "To explain this expression," he writes

> I will point out that, without taking the words "world" or "universe" too seriously, we may distinguish the following three worlds or universes: first, the world of physical objects or

> physical states; secondly, the world of states of consciousness, or mental states, or perhaps behavioral dispositions to act; and thirdly, the world of objective contents of thought, especially of scientific and poetic thoughts and of works of art (p. 106).

This third world of Popper is one which is to be distinguished from the world of concrete actual, on the one hand, and of human thought, on the other, although it recognizes that human beings can create things which, as it were, enter into this third world.

Popper's attempt is clearly to indicate that neither a radical idealism nor a radical materialism can long be maintained consistently or practically, but there exists a third world, which is not quite material or quite pure thought but which is certainly involved in all that takes place. The term "meaning" is one which is often used to indicate this third world as, for example, when it is indicated that knowledge and meaning are to be distinguished from one another, on the one hand, and when it is indicated that appearance is to be distinguished from reality, on the other hand. The meaning which is different from knowledge, and the reality which is different from appearance are both in the third world.

Scientific laws exist in the third world. For example, we have a law in chemistry that says that when A and B are combined, they form C. If no one knew this law, it would be in no one's mind, unless one would have all laws in the mind of God. The law is not contingent on the existence of the human mind which formulates this law, and may certainly be taken as having been in existence before human evolution. In this sense, the law is *objective.* One may come to think about it, but its prior existence to being thought is one consequence of its objectivity.

On the contrary, the law is not *in* physical matter for there may well be innumerable intervals of time during which that chemical reaction is not taking place anywhere in the universe. Yet the *law* of that chemical reaction persists through such intervals. The locus of that law is the third world.

But what about human creations, inventions, the works of art, and all other things that collectively constitute our culture? Now certainly, we cannot deny the reality of culture. Things for the third world can certainly be *created* by human beings, such as inventions and symphonies. They may even be *put into* the physical world, as when one makes a model of an invention or writes out a new symphony, or plays it. What about, say, the electric motor or Beethoven's ninth? Certainly, there are various copies of those particular constellations on paper, in metal, or in movements of air. But those are certainly not Beethoven's ninth. There may also, from time to time, be certain movement of the air in a concert hall. But those are not the electric motor or Beethoven's ninth. The electric motor and Beethoven's ninth exist as something else, however much their continued existence may be contingent on events in the physical world. That existence is in neither the first nor the second world, but only in Popper's third world.

For all the limitations of the classical religious views of the world, one of the great values associated with the view of the world expressed, say, in the Bible and emphasized most strongly in the mystical traditions that have been informed by Biblical tradition is that it *constitutes a view of reality in which both knowledge and creation have a place without introducing inconsistency*.

One of deepest characteristics of the mystical tradition throughout the ages is that it allowed a conception of the universe which is in some way something like a human being in that it conceives of the world as both *living* and *mentating*. By the very allowing of an all-encompassing personal type of being, similar to that founding human being, it allowed that knowledge and creation were one. According to the Biblical text, human being was made in the "image" of God, which allowed human being, by self-examination, to understand the universe as a whole.

Our understanding of the idea of the third world can, I believe, be deepened by considering some of the history associated with the idea of *natural law.* To appreciate the history of natural law properly, it is necessary to examine Maimonides' *The guide for the perplexed* more closely. Written around 1200 CE in Arabic, it was later translated into Hebrew and Latin. In its Latin form and then in other translations, it exerted a major influence on Western thought, not the least through influencing the thought of St Thomas, Leibnitz, and Newton. The avowed aim of the *Guide* was to reconcile Jewish religious views with the Aristotelianism which had become central in Muslim philosophy. Maimonides' aim was to develop a true sense of the Law, the secrets of the Law, which would not be inconsistent with the world of nature. Maimonides openly and forcefully rejected the literal interpretation of the Bible. Thus, at one point he writes, "…the account given by Scripture of Creation is not, as is generally believed, intended to be in all its parts literal… The literal meaning of the words might lead us to conceive corrupt ideas and to form false opinions about God, or even entirely to abandon and reject the principles of faith" (Maimonides, 1956, p. 211). Maimonides' aim is to comprehend by reason. He writes: "To give full explanation of the mystic passages of the Bible is contrary to the Law and to reason; besides, my knowledge of them is based on reasoning, not divine inspiration" (p. 251). Maimonides is a relentless empiricist: "I have already told you that nothing exists except God and his universe, and that there is no other evidence for His existence but this universe in its entirety and in its several parts. Consequently the universe must be examined as it is; the propositions must be derived from those properties of the universe that are clearly perceived, and hence you must know its visible form and nature. Then only will you find in the universe evidence for the existence of a being not included therein" (p. 113).

This movement toward the study of nature constituted a major departure in Jewish rabbinic thought for Maimonides, and indeed, for the non-Jewish, though it was presently to influence. In the Bible, there are indications that nature may be regarded as a testimony to the greatness of God (cf. Isaiah 40:26; Amos 5:8; Job 38–41). Similarly, in rabbinic thought, the major thought is expressed in the Psalms "How mighty are Thy Works, O Lord." Yet sometimes there is a distinctly negative attitude expressed to looking into nature rather than into studying God's word in the Torah. Thus, we find, in rabbinical literature "He who walks by the way of studying, and interrupts his studying by saying 'How pleasant is this tree, how pleasant this plowed field'… it is as if he were deserving of death" (Avot 3:8 EJ Nature 888).

It may well be that the very tension within Jewish culture between these two poles provided the dynamic for the kind of examination of the world empirically

and rationally as represented by Maimonides. But this topic leads us too far afield to take up here. For Maimonides, the natural world is to be looked at, beheld, and studied not the least because it is the creation of God. The laws of nature were to be looked upon as divine decrees, a notion which was explicitly picked up from Maimonides by Isaac Newton (Newton, 1950, p. 16: "*Ex Maimonides de Cutu Divino…*"). For Newton, "…laws are impressed on nature by the powers of God" (Newton 1950, pp. 17–18).

Scientific discovery and learning were the reactivation in the human mind what had been in God's mind. This idea is to be found in Maimonides and is probably a reflection of the notion of the Islamic philosopher al-Farebi, who was a major influence on Maimonides (EJ Farebi cf. Leo Strauss). The "active intellect" (which he gets from Aristotle, the *nous poietikos*) governs the world, from the cosmos. It is "the Giver of Forms," and this is the rational structure of the world. In addition, it is that which activates the human intellect. The aim of life is to achieve intellectual perfection, to have the active intellect of human beings fully activated by the divine active intellect, and thereby even become divine. This was ultimately a kind of doctrine of rationalist revelation.

Newton's notion of God was that of God as the "author." In one discussion of the biological symmetry of animals and human being, Newton writes: "whence arises this uniformity in all their outward shapes but the counsel and contrivance of an Author?" Even as Bergson (1911) some centuries later was to challenge the lack of existence of a larger cosmic vitality by considering the structure of the eye, so did Newton "Whence is it that the eyes of all sorts of living creatures are transparent to the very bottom, and the only transparent members in the body, having on the outside a hard transparent skin and within transparent humors, with a crystalline lens in the middle and a pupil before the lens, all of them so finely shaped and fitted for vision that no artist can mend them?" He then goes on to offer one of the more cogent arguments for the existence of God that the creation of the eye must have entailed an understanding of the laws of the refraction of light: "Did blind chance know that there was light and what was its refraction, and fit the eyes of all creatures after the curious matter to make use of it: These and such like considerations always have and ever will prevail with mankind to believe that there is a Being who made all things and has all things in his power, and who is therefore to be feared" (Thayer, 1953, pp. 65–66).

These issues still haunted Charles Darwin when he composed *The origin of species*. For certain the theory of natural selection which Darwin expressed provided a very plausible mechanism whereby positively adapted organs would be, as it were, automatically created, without any particular divine interventions. But in the opening of the book, Darwin placed three quotations which allude to these questions. His theses: there is variation among organisms; organisms reproduce in numbers which are greater than can be sustained by available resources; there is competition; those who, by virtue of the variation, were equipped with biological characteristics which could contribute to survival tended to survive; and these, in turn, transmitted these more valuable traits in the struggle for existence to their offspring; this process,

repeated over many, many generations, is a process which created the historical pattern of evolution.

But yet in the opening of the book, Darwin cites three quotations that are worth examining in detail. I believe their meaning is better revealed by examining them in reverse order from the way he presented them, and I will do so here.

The last is from Francis Bacon's *Advancement of Learning*:

> To conclude, therefore, let no man out of a weak conceit of sobriety, or ill-applied moderation, think or maintain, that a man can search too far or be too well studied in the book of God's word, or in the book of God's works; divinity or philosophy; but rather let men endeavor an endless progress or proficiency in both.

We must remember that Darwin had been deeply concerned with religious matters, and had, in point of fact, been to Cambridge to prepare for Holy Orders in the Church of England, however unenthusiastic a student he had actually been. It is also true that he found the Biblical account of creation a "false history" and that the God of the Old Testament was an untrustworthy "revengeful tyrant." Christianity was for him a "damnable doctrine." Yet, nonetheless, we find here a sentiment that expresses a parallel between the study of God's *word* and the study of God's *works*, an affirmation of the concept of God as author.

The second quotation is from the eighteenth century English Bishop Joseph Butler, whose book was an attack on those who would prove God rationally from nature rather than from faith or revelation. The quotation is from what Darwin calls *Analogy of revealed religion*. (It is parenthetically of interest that the book was actually titled *The analogy of religion, natural and revealed, to the constitution and course of nature*.) The quotation is as follows:

> The only distinct meaning of the word "natural" is *stated, fixed, or settled*; since what is natural requires and presupposes an intelligent agent to render it so, that is, to effect it continually or stated times, as what is supernatural or miraculous does to effect it for once.

In this, it appears to me that Darwin is attempting to cite the "enemy" as it were, to his own advantage – and being so casual about it as to convert Butler's title to the *Analogy of* ***revealed*** *religion*, distorting the original "*natural and revealed*" of Butler's actual title. Even the enemy would allow, it would seem that, that which appears to be that of an intelligent agent in the world, as "*stated, fixed, or settled.*" Thus, what is imminent in the world is not God, but only *natural laws*. The supernatural is what was only long ago, for even the "enemy," that is, the proponent of revealed religion, acts but once and not abidingly.

But what about natural laws then? My purpose in reciting these quotations in reverse order should now become evident. The first quotation is from William Whewell who was important in the nineteenth century for having offered an explication of the nature of the scientific enterprise. He developed a theory of induction, as the induction of generalization from analysis of particulars. But more importantly, Whewell is most important for our discussion because of the essential similarity that his thought bears to the thought of Farebi. On the basis of his study of Kant, Whewell developed the concept that our fundamental notions such as space, time, cause, and

number reside in the mind of the divine, and are learned by human beings in a process which is similar to divine revelation. The quotation from Whewell is as follows:

> But with regard to the material world, we can at least go so far as this – we can perceive that events are brought about not by insulated interpretations of Divine power, exerted in each particular sense, but by the establishment of general laws.

Thus with this, Darwin in point of fact was finding his way back to the classical position which had been expressed by Newton. Through induction – he was indeed quite fond of the thought of Francis Bacon – he would collect his data, and then, on the basis of the data collected, would attempt to make hypotheses concerning the law. The law was to be found in this way, through the examination of God's works. The law existed continuously, without repeated intervention by God. And the law was general enough to find expression in particulars. It was precisely this general law which was the work of God, back to Newton and Maimonides who conceived of laws as divine decrees. What Whewell contributed further is that these processes which we take as most fundamental for grasping the nature of the world, those processes addressed by Kant, were equally to be appreciated as consequential from the Divinity.

## Thermodynamics and Information

One of the great paradoxes associated with the thought of the last several centuries is this: while the world has become increasingly persuaded of the merit of the Baconian maxim that "knowledge is power," at the same time we have become increasingly committed to a kind of Haeckelianism which allows little reality to knowledge as such. That is, in the kind of materialism which has developed, there is little place for the existence of knowledge in the real world, for the real world as conceived in Haeckelianism can have no knowledge *in* it. Reality is understood as only the material *in* it and the movement of the material. Thus, the knowledge of the world can only exist on the basis of a totally relaxed materialism, materialism which is so relaxed that it is no longer materialism.

On the contrary, the very advances of knowledge themselves have forced, in at least two areas, control theory and genetics, an essential acknowledgment of the existence of information; however much this has placed a strain on the classical Haeckelianism which still constitutes the principle matrix of scientific thought. I would like to review some of these developments which have taken place within the field of thermodynamics which I believe constitute the essential background for these changes in engineering and biology.

While the pragmatic criterion of truth may have much to commend it, we cannot overlook the historical fact that both great successes and great blunders may be traced to limited insight. There can be little doubt but that a great deal of the success that we have had over the last few centuries in bringing matter and energy under our control may be attributed to the historical doctrines of materialism and atomism, a

view that ultimately all things are composed of and explainable in terms of very small units of matter which occupy and interact within space. In this view, whatever conditions exist, or whatever changes take place, are manifestation of the configurations and interactions among these small units of matter. This idea may be traced to Democritus in the fifth century BCE, to Epicurus in the third century BCE, and its great ancient explication by Lucretius in his *De Rerum Natura* (*On the nature of things*). Lucretius' passion is derived from Epicurus' idea that death may be conquered, and the theory of the atoms and the void is to him the great truth about the nature of death:

> Moreover nature dissolves everything back into its first bodies and does not annihilate things. For if aught were mortal in all its parts alike, the thing in a moment would be snatched away to destruction from before our eyes; since no force would be needed to produce disruption among its parts and undo their fastenings. Whereas in fact, as all things consist of an imperishable seed, nature suffers the destruction of nothing to be seen, until as force has encountered it sufficient to dash things to pieces by a blow or to pierce through the void places within them and break them up (Oates, 1950, p. 73).

The doctrine was picked up again by Gassendi in the seventeenth century, and more importantly, for its subsequent influence on the contemporary world, by Thomas Hobbes. Hobbes brought it to bear as a way of explaining human psychological functioning, allowing that sensations were corporeal movement in the brain. The doctrine was reinvigorated in France after Descartes and received its very significant expression in the eighteenth century work of La Mettrie (*L'Homme machine*) and d'Holbach (*Systeme de la nature*). The view was integrated into the various ideas expressed in the *Encyclopedia* of Diderot and was a significant part of the ideological development that preceded the French revolution.

But the doctrine appeared to be most valuable for the development of chemistry in the nineteenth and twentieth centuries. The atoms were identified, each type with an elementary substance. Molecules were identified, each with substances seeming to arise from various combinations of elementary substances, or showing properties which allowed one to infer such combinations of elements. Various chemical reactions were rendered explicable in terms of changes in the configurations of the atoms into new molecules.

The extension of the doctrine for the explanation of the phenomena associated with heat entailed the initial problem that there were numerous phenomena associated with heat which entailed no demonstrable chemical reactions. Thus, for example, in the changes from ice, to liquid water, to steam, there appeared to be no changes in the water molecule.

In the development of the theory of heat, the molecule was taken as the basic unit of matter, the "atom." As such, it seemed the application of the doctrine, explaining various heat phenomena in terms of the configurational events of these molecules. The development of the molecular theory of heat began in 1738 with Daniel Bernoulli, the first of the distinguished Bernoullis, with the publication of *Hydrodynamica*. Bernoulli demonstrated that Boyle's law (or Marriotte's law), that the product of the pressure and the volume of a gas remains constant under a condition of constant temperature, could be derived from the assumption that temperature

was a manifestation of the average velocity of the molecules in the gas. James Clerk Maxwell developed this molecular theory in his *Theory of heat* (1872). Maxwell, considering a gas now to consist of molecules in motion, something like hard balls flying around and colliding with each other, formulated the law of distribution of the velocities of these molecules, indicating how many molecules were moving at each of the possible velocities, which collectively made the mean velocity that Bernoulli identified. He also demonstrated that the viscosity of gases could be explained in terms of the average distance that the molecules traveled between collisions, the mean free path.

The methodological masterstroke was in the turning of attention to the aggregate of the molecules' movement in space, without actually being able to measure the actual movement of the theoretically present molecules, to consider them as producing designable properties of the gases by their aggregate behavior. Conceiving of the events in statistical terms then allowed the introduction of probability considerations for the understanding of the behavior of gases. This step was taken by Ludwig Eduard Boltzmann, who extended the molecular theory of heat to account for entropic phenomena by the introduction of probabilistic considerations.

Concerning entropic phenomena, and let me pause to consider these for a moment, the concept of entropy derives from the observation that heat can only be used to obtain work when there is a difference in temperature between two parts of a closed system. If both are very hot, no work can be derived. If both are cold, no work can be derived. The concept of entropy was proposed by Rudolf Clausius to refer to the unavailable energy, the used up energy, of a system. The second law of thermodynamics indicates that entropy increases in irreversible processes such as the mixing of gases of different initial temperatures into a gas of homogenous temperature. As the mixing proceeds, the availability of energy for work declines and the entropy is said to increase.

Ludwig Boltzmann, building on the mechanical and statistical contributions of Bernoulli and Maxwell, added *probabilistic* considerations in the further development of the theory of heat. The distinction between statistical and probabilistic is extremely important to the point, and I pause to indicate the difference.

The subject matter dealt with in statistics is the properties of actual aggregates (the distinction I am here making is sometimes referred to as one between descriptive and inferential statistics, but there need be no confusion on this point). Thus, for example, if our data were the measurements of the heights of persons, we might examine all the measurements, considering them as an aggregate, and compute means, ranges, standard deviation, differences between means of subgroups, etc. *Statistics entails the study of aggregates where the aggregates represent events that actually have taken place, or conditions that actually have existed.* Probability, however, deals with *aggregates which are not in the realm of actuality in the same sense*. Thus, for example, we might talk of the probability of a coin falling heads up. We would say that the probability of a given coin falling heads up is ½; that is, there is one way by which the coin can fall heads up, while there are two ways that the coin may fall. *But this makes sense only about an event which is not an actual event*. For, after the toss of the coin, there is no sense at all in talking about the probability

of its being heads up when it is heads up already. In this sense, the discipline of probability becomes irrelevant after an event has become an actual event.

With this distinction before us, we can consider the contribution that was made by Ludwig Boltzmann. In 1877, Boltzmann proposed a definition of entropy in terms of probability. Consider a gas in a chamber consisting of molecules in motion within the chamber. If all the rapidly moving molecules were over on one side of the chamber and all the slow moving molecules were over on the other side, part of the chamber would be warm and part would be cool, and the system could be used to produce work. Thus, entropy would be low. If, on the contrary, the fast and slow moving molecules were homogenously mixed in the chamber, it would be impossible to get work out of the system, and entropy would be high. Boltzmann's observation was as follows: *the number of possible ways by which the molecules can be homogeneously mixed in the chamber exceeds the number of possible ways by which rapid one can be on one side and slow ones on the other*. Furthermore, as the total number of ways by which molecules might be arranged in the chamber increases, there is a substantially greater growth rate of ways by which molecules can be homogeneously mixed than the growth rate of the number of ways by which fast molecules are to one side and slow ones to the other. Boltzmann derived his extremely important definition of entropy, $S$, that

$$S = k \ln W,$$

in which $W$ is the number of ways in which the molecules might possibly be arranged, $k$ is the Boltzmann constant, and "ln" designates the natural logarithm of $W$.

Boltzmann's argument and manner of reasoning were not generally understood or accepted by most physicists in his lifetime. Indeed, he became very depressed and committed suicide. There seems to be some reason to suspect that the poor reception of his ideas was associated with his suicide. It was until his ideas were found to be further useful in connection with atomic physics in the twentieth century that Boltzmann's work came to be appreciated.

The fact is that Boltzmann's work constitutes a major departure from any traditional notion of measurement. *It allowed the measurement of the actual by bringing to bear the possible.* All traditional measurements entail bringing to bear the actual on the actual. The entropy of a particular state, as a measure of the number of microstates making up that state, is an actual state. But $W$ is a number of alternative ways that the state *could* be.

More broadly, the work of Bernoulli, Maxwell, and Boltzmann established a most significant way of dealing with the relationship between macroscopic and microscopic physical events. Characteristics such as the temperature and the pressure of a gas are macroscopic. The positions and velocities of atoms and molecules of a gas are microscopic, and the achievement of this work was to show how it is possible to derive the macroscopic events from the microscopic events.

The work consisted of a series of steps which might usefully be distinguished in our considerations of it: the description of the momentary states of individual atoms, the bringing to bear of the laws of mechanics, the combination into descriptions of systems by bringing to bear statistical procedures, and finally, the bringing to bear

of probability considerations. All the steps are factitious, however hypothetical the presumptive facts. The last step, by Boltzmann, departed from the completely factitious to the realm of *possibility*.

Let me link this to Popper's third world. Popper's three worlds are first, the world of physical objects or states. We can include in this first world the information on some momentary state of a system on the microscopic level. We can also include in the first world the macroscopic characteristics of a system such as pressure and temperature. Popper's second world of consciousness and mental states has little bearing unless one wishes to argue some kind of ultimate solipsism, and argue that all these characteristics of a gas are figments in the minds of physicists. If we took this last tack, we would have to argue that there is no relationship between the microscopic and macroscopic before Bernoulli, or maybe before Democritus… which would be silly. When we come to Popper's third world, the objective content of thought, it is in this world that *possibility clearly exists*. For the objective contents of thought is a category much larger than the universe of the actual.

We can understand this better by considering *contradiction*. It is in the nature of contradiction that it can never exist in the first world but only in the second and third worlds. The theory of probability rests on the simple fact that while contradiction can exist in the third world, it cannot exist in the first. It is precisely from this fact of the location of contradiction that probability theory derives its power. At its root, probability deals with such a contradiction as "the coin falls heads up, the coin falls heads down." *Within* the third world, both "the coin falls heads up" and "the coin falls head down" coexist. But within the first world, only one of them can exist.

Toward the end of *Theory of heat*, as though musing over what he had accomplished in the book, Maxwell raised the question of the relationship between human-like consciousness and the theory and phenomena he had been discussing. He spoke of a kind of hypothetical being, endowed with human-like judgment and power, living in gas, but did not have a physical presence to otherwise interfere with events. This hypothetical being was later dubbed the "Maxwell demon." This demon has continued to plague physics ever since.

The second law of thermodynamics indicates that heat cannot pass from a colder to a hotter body, at least not without the expenditure of work to make it happen. If there was a gas in a chamber with a partition with a hole in it, an intelligent being might, by discriminating between fast and slow moving molecules and deciding which molecules could pass through the hole in the partition, seemingly bring about a violation of the second law of thermodynamics. By allowing only fast moving molecules to enter say part A and allowing only slow moving molecules to enter say part B, the temperature of A would rise and the temperature of B would fall. The heat would become available to do work and theoretically could be used to operate a perpetual motion machine. [It has been argued by Brillouin (1962) that a demon of such a nature would require at least such physical presence as to illuminate the inside of the chamber so that he could see the movement of the molecules, and thus, would require the introduction of an energy source in some kind of lantern. I really think that Brillouin's discussion misses the point and deflects our appreciation of it by its very concretization.]

Thus, in an odd sort of way, thermodynamic theory, involving a most unusual way of conceptualizing measurement, finds itself led to think about mentation. Lord Kelvin, following Maxwell – and who incidentally coined the name "Maxwell's demon" – also allowed for vital or mentational processes. The animal body does not act as a "thermodynamic engine." How it is different from a thermodynamic engine has yet to be explored. "The means in the animal body by which mechanical effects are produced cannot be arrived at without more experiment and observation." He could not say what these means were. Yet, he said, "Whatever the nature of these means, consciousness teaches every individual that they are, to some extent, subject to the direction of his will. It appears….that animated creatures have the power of immediately applying to certain moving particles of matter within their bodies, forces by which the motion of these particles are directed to produce the desired effects" (Ehrenberg, 1927, p. 104).

This brings me to a consideration of the contribution to this discussion of the work of Leo Szilard. Aside from his scientific contributions, Szilard played an important role in history because of his particular role in persuading Albert Einstein to write a letter to Franklin D. Roosevelt urging the development of the atom bomb and for his work with Fermi in making the first nuclear reactor at the University of Chicago. In 1929, as a young physicist at the Institute of Theoretical Physics at the University of Berlin, he published a paper in *Zeitschrift fur Physik* (1929/1964) entitled *On the decrease of entropy in a thermodynamic system by the intervention of intelligent beings.* This paper has been recognized as one of the earliest papers in which entropy as understood in the sense of physics was identified within information as this is understood in the context of modern information theory.

It may be of some value to collect a few of our observations before considering the step which was taken by Szilard in detail. The developments in thermodynamic worked to push thought outside of Popper's first world and into either the second or the third world. The first world of physical objects/states was clearly inadequate for thermodynamics, for the universe of probability theory is certainly beyond the first world. A Maxwell demon is beyond the first world. Kelvin's consciousness, will, and animation are beyond world one. But consider carefully Popper's distinction between world two and three. World two is the world of "consciousness or mental states, or perhaps of behavioral disposition to act." Whatever world two would consist of in detail, it is clearly a world which is *contingent* on the kind of thing which a human being brings to bear, even if we do not quarrel with Popper's waffling between consciousness and mental states, on the one hand, and behavioral disposition to act, on the other hand. The point of value for this discussion is the fact that Popper would distinguish between this second world, *contingent of human existence*, and the third world, "the objective contents of thought, especially of scientific and poetic thoughts and of works of art." I suggested that there are three very important features entailed in this characterization of the third world. The first is that the third world consists of that which is *objective*. Objective is to be understood as not contingent on human existence. But Popper says "objective content of thought." I take this to mean that it is the objective which is thinkable. However, the contents of thought are not contingent on the existence of human beings. This *thinkability* is the

second important feature of Popper's third world. And the last feature of importance is that he allows within the third world two kinds of tenants, the yield of science and the yield of art, both what humankind *finds out* about the universe into which it finds itself born, and that which humankind *creates to dwell and abide within it*. The third world has the yield of knowing and creating, these being perhaps *processually contingent* on the human being but are not *ontologically contingent*, they are objective.

In these terms, let me attempt to state what I believe in the major conclusion to be drawn from Szilard's work. It is the establishment of information as a feature of the objective world, which may or may not be actual. Szilard uses the phrase "intelligent being" and Maxwell had his "demon," yet neither was talking about a human being. The value of Popper in this regard is that he has severely distinguished between world two and three, overcoming the historical confounding of the objective contents of thought, the third world, on the one hand, from the human mentation (or even dispositional), the second world, on the other hand. What Szilard is clearly discussing is the third world; however, he happens to use the *rhetoric* associated with the second world, however much his concern was with the first. The fact is that at least from the time of Boltzmann, the first and third worlds were intimately intertwined in the yield of thermodynamics.

Szilard wrote that it was the objective of his investigation "to find the conditions which apparently allow the construction of a perpetual motion machine of the second kind, if on an intelligent being to intervene in a thermodynamic system" (p. 301). This is the central idea of his paper. Like the age-old passion for changing base metals into gold, so has there been a corresponding passion to find a machine which could go on indefinitely and be used to do work. Such a machine, if it were ever constructed, could produce power without an external energy source. Perpetual motion machines of the first and second kind allude to machine which might overcome the limitations associated with the first and second laws of thermodynamics. The first law is that energy cannot be created or destroyed, the law of conservation of energy formulated by Helmholtz. A perpetual motion machine of the first kind would produce more energy than any energy required to operate it. A perpetual motion machine of the second kind would be one which could obtain work from a system in which there was no difference in temperature. The challenge of Maxwell's demon was that, at least allowing the theory its head, the decisions of an intelligent being, decisions as such being nonenergetic, might be able to produce a situation which appeared to violate the second law of thermodynamics. Szilard says that the objection to the universal validity of the second law of thermodynamics as embodied in the idea of Maxwell's demon is not unreasonable, "inasmuch as behind the precisely formulated question quantitative connections seem to be hidden which to date have not been clarified" (p. 301). It is to the clarification of this question that this paper is devoted.

Szilard is deeply aware of the purely theoretical character of his investigation. No real living being could be like a Maxwell demon. The Maxwell demon is a "sort of *deus ex machina*… who is continuously and exactly informed of the existing state of nature and who is able to start or interrupt the macroscopic course of

nature at any moment without any expenditure of work" (p. 302). Real human beings are different.

> In eliciting any physical effect by action of the sensory as well as the motor nervous system a degradation of energy is always involved, quite apart from the fact that the very existence of a nervous system is dependent on continual dissipation of energy. …Whether – considering these circumstances – real living beings could continually or at least regularly produce energy at the expense of heat of the lowest temperature appears very doubtful, even though our ignorance of biological phenomena does not allow for a definite answer. However, the latter questions lead beyond the scope of physics in the strict sense (p. 302).

Szilard is thus clear in attempting to distinguish between the biological, and hence energetic, in the physical sense, being and intelligent being. It is the latter that he is interested in, and not the former. He writes: "We wish next to learn through what circumstance such entropy takes place by the intervention of intelligent beings in a thermodynamic system" (p. 303). [I have had to depart at this point from using the Rapaport and Knoller translation, since I think that in their translation, the main point is lost. The German of Szilard reads*: "Wir wollen zunachst zu erke ennen trachten, durch welchen Umstand bei dem Eingreifen intelligenter Wesen in einnn thermodynamisches System die in diesem hervorgenbrachte Entropieverminderung begingt wird…."* Rapaport and Knoller make this "In the first place, we wish to learn what circumstance conditions the decrease of entropy which takes place when intelligent living beings intervene in a thermodynamic system." While Szilard uses only "intelligenter Wesen" or intelligent beings, Papaport and Knoller make "intelligent living beings." Not only does Szilard have anything to correspond to their "living," but I also believe that it was precisely his aim in this section of the paper to indicate that what he was talking about was the *intelligence* feature which human beings may have in common with the demon, but to distinguish human beings because they also have bodies with corresponding energy transformations. The addition of "living" in the translation confounds the very point Szilard was trying to make.]

Szilard says that such a violation of the second law of thermodynamics becomes possible by

> "a certain type of coupling… …we shall see that this depends on a certain type of coupling between different parameters of the system. We shall consider an unusually simply type of these ominous couplings." [Rapaport and Knoller say at this point "The author evidently uses the word "ominous" in the sense that the possibility of realizing the proposed arrangement threatens the validity of the Second Law."] For brevity we shall talk about a "measurement," if we succeed in coupling the value of the parameter $y$ (for instance the position coordinate of a pointer of a measuring instrument) at one moment with the simultaneous value of a fluctuating parameter $x$ of the system, in such a way that, from the value $y$, we can draw conclusions about the value that $x$ had at the moment of "measurement." Then let $x$ and $y$ be uncoupled after the measurement, so that $x$ can change, while $y$ retains its value for some time. Such measurements are not harmless interventions. A system in which such measurements occur shows a sort of memory faculty, in the sense that one can recognize $x$ by the state parameter $y$ what value another state parameter $x$ had at an earlier moment, and we shall see that simply because of such a memory the second law would be violated, if the measurement could take place without compensation (p. 303, brackets added).

The last sentence indicates that a violation of the second law would take place unless there was compensation. He is about to develop the idea of compensation,

and thereby, as it were, save the second law. But let me dwell for a moment on what is being said here so far. The factual event is *x* and *y* is the measurement of the event. And even though the factual event continues to change, the *y* persists through time as the memory of an earlier *x*. There is a coupling of *x* and *y* at the instant of measurement, but then they get uncoupled in the sense that *x* changes and *y* remains as – and let me introduce the word at this time – the *information* about where *x* was but is no longer. It is precisely because of the existence of *y* after the occurrence of *x*, and after the momentary coupling of *x* and *y*, that the second law might be violated.

He then goes on to explain what he means by compensation.

> We shall realize that the Second Law is not threatened as much by this entropy decrease as one would think, as soon as we see that the entropy decrease resulting from the intervention would be compensated completely in any event if the execution of such a measurement were, for instance always accompanied by production of *k* log 2 unit of entropy. In that case it will be possible to find a more general entropy law, which applies universally to all measurements (p. 303).

This is the crux of the argument. The decrease in entropy in the physical system is compensated for by at least an equal amount of entropy production, "*in a more general entropy law*." In effect, Szilard has posited a larger system than the relentlessly physical one. This larger system contains both the physical system and the intelligent, or measurement, system. "To put it precisely," he writes, "we have to distinguish here between two entropy values" (p. 304). The compensation he envisages is a rise in entropy in the intelligence system at least as large as the decrease in entropy in the physical system. By conceiving of this larger system, which includes the intelligence system, including its memory which goes beyond physical facticity, the second law of thermodynamics is saved. For whereas he allows the possibility of a decrease in entropy in the part of the system which is physical, there is a compensating increase in another part of the system at least as large. Thus entropy only increases, as the law indicates.

In 1948, a paper appeared in the *Bell System Technical Journal* by an engineer who worked for the telephone company. The paper entitled "*the mathematical theory of communication*" presented a theory which has played an extremely important role in connection with all subsequent developments in technology of processing and transmitting information. The essential feature of information theory as developed by Shannon was the transfer of the mode of the thought which had developed in connection with thermodynamics for the characterization of essential features of information handling equipment. He applied the entropy formula which had emerged from the work of Bernoulli, Maxwell, and Boltzmann, and labeled the quantity II, the entropy, and identified that quantity with the average information of a message set.

Thus, when a message is transmitted, the *amount* of information in the message is identified with all that had to be driven away, as it were, for that message to get through. And *its* amount of information is precisely a function of its prior probability. Simply put, the amount of information that is received in a message depends on how likely it was in the first place, and what reasonable alternatives had to be negated for it to be transmitted.

More specifically, every possible message in a message set is said to have an amount of information associated with it which is log (1/$p$), which is the same as the logarithm of the reciprocal of the probability of the occurrence of the message. Thus, if the chance of a message occurring is ½, then its reciprocal is 2/1, and the amount of information that is associated with it is (log 2 – log 1). The latter is equal to (1–0), which is 1. Similarly, the information which would be associated with, say, an alternative message having the same probability is also 1.

The average amount of information in a message set is then precisely the average of the amount of information in each alternative. To get this average, one simply multiplies each amount of information by its corresponding probability and adds them. This gives the formula

$$H = p\log(1/p) + p\log(1/p)\cdots p\log(1/p),$$

or in the more usual form in which it is presented

$$H = -p\log p.$$

This is identical to the formula for entropy in thermodynamics. Of course, the fact that those virtually identical mathematical formulations appear to apply to the behavior of a gas and to information raises the question as to whether some deep underlying condition has been identified, or that it is another example in which a branch of mathematics just happens to have usefulness beyond the area in which it was developed. The proliferation of literature on this question has been considerable.

I suggest that the reason for the parallel between entropy and information is readily understood in terms of the considerations of the third world. As has been indicated, with Boltzmann the nonactual alternatives that lived only in the world of possibility were included in the measurement of states of a gas. It is, of course, this feature which Shannon picked up for the study of message processing. Certainly, the amount of information in a message which has been transmitted can be interpreted in terms of all the other possible messages which were "overcome" in the transmission; and certainly the amount of information in any one message which is actually transmitted can be understood as a function of how small the probability of its transmission was in the first place. But the latter probability is contingent on all the contrary, and excluded, alternatives which, while not being transmitted, exist only in some nonactual world.

One of the great disappointments of many who got very excited with the appearance of Shannon's information theory is that they hoped in some sense cracking the meaning of meaning with a new mathematical tool was never realized. The fact is that the Shannon theory was a theory of information *measurement* and not one of information. It took for granted without analyzing further that messages had probabilities associated with them. And it made the assumption that the measure of information which a transmitted message *had* was based on alternatives to be overcome. That was not an unreasonable assumption to make for the purpose of information *measurement*, but it participated in the major leap in measurement made by Boltzmann of using the third world in new ways for measuring that which was actual.

The great contribution of Szilard to this set of developments was to have indicated that there were two entropy values which were in fact united, "To put it precisely: we have to distinguish here between two entropy values." And that the total entropy of a system cannot stop with just the physical system, but must indeed entail simultaneously an intelligence system; for without the two systems, the second law of thermodynamics was just untenable.

Shannon's use of these developments in connection with a mathematical theory of communication is hardly merely fortuitous; neither is the intuition of many that there is something lodged in these considerations which can have widespread implications so misguided. Where there is misguidance is in the over-concretization, and the failure to realize the implicit recognition of the role of the third world in the real world that is involved.

It is evident that we are, at the very least, straining the bonds of Haeckelism. Perhaps, one of the most sophisticated versions of Haeckelism in a large part of the twentieth century has been the physicalistic thesis associated with Logical Positivism and its various versions. It essentially is the view that all meaningful language must ultimately be based on the language of the physical sciences, most notably the language of physics (although possibly allowing an exception for formal languages such as mathematics and logic). Behind this is the assumption that ultimately the real world is the world of small irreducible unit of the kind originally proposed by Democritus, celebrated by Lucretius, brought up to date for the modern world by Gassendi and Hobbes, and onward. Unfortunately for the view, the development of modern physics has thrown great doubt on any ultimate "hard" units. There are such of course, electrons, protons, mesons, neutrons, and a multiplicity of particles, including the "strange particles" said to be possessed of "strangeness," perhaps even another universe somewhere consisting of antimatter, antigalaxies, antistars, and antiplanets which, should they ever come into contact with matter, would result in annihilation and the release of large quantities of energy; and especially, of the dissolution possibilities of matter into energy, which comprised the long-standing principle of the conservation of matter.

There is yet a further *a fortiori* argument inherent in the Szilard paper against any form of Haeckelism. By a very complex set of arguments which allude to the most subtle aspects of theoretical physics, which very few people could appreciate without much study, Szilard demonstrates, as the title of his paper indicates, that there can be a "decrease of entropy in a thermodynamic system by the intervention of intelligent beings." The extended argument deals with hypothetical demons inside gas chambers, gases consisting of single molecules, thought experiments which could never be conducted in actuality, abstruse mathematical considerations, written by a Hungarian who never quite mastered his German, the paper which remained untranslated until 1964 in any known published form, and then when translated into English, some of the basic points were missed by the translators – if this author indeed be very pretentious in making this last claim might be right nonetheless. It all adds up to powerfully little cogency, it would seem.

But *a fortiori*, if there is reason to believe that intelligent beings can intervene in thermodynamic systems to produce an entropy decrease, certainly intelligent beings

can intervene in other physical systems toward making energy available for work in other ways.

Having said even so much, we might even choose to ignore the argument completely and turn to other more empirical, more obvious types of observations. Indeed, except for the odd condition of our theoretical orientations on which the Szilard argument might bear, there is really no need for any great proof that the intervention of intelligence may certainly have an effect on physical systems. I have but to look directly in front of me at the typewriter to see the way in which intelligence played a role in the fashioning of metal and rubber to make this machine. That is evidence enough that intelligence can have an effect on physical systems.

## Logic of Interpretation

Interpretation is a psychological process. It is essentially a process associated with a being who is possessed of intelligence. Insofar as the human being is not only being possessed of intelligence, but perhaps has more of the trait than other animals, nonetheless, at least to that extent, the human being is certainly the leading interpreter on the face of the earth.

Interpretation is then a process to be identified with Popper's second world, the world of "states of consciousness, or mental states, or perhaps dispositions to act" as Popper writes. As a human activity, it is certainly one which is subject to extreme variation. As a consequence, given the importance of interpretation to human existence, survival, and social, political, and economic interactions, the matter of interpretation has often become inextricably enmeshed in questions of human *authority*, in both sense, of who is to be believed and who is to be obeyed.

One place where the deep uneasiness of humankind in connection with interpretation is to be found is in the historical conflicts surrounding the literalist, the fundamentalist, interpretation of the Bible. In a world in which the authority of the Bible was taken for granted, a Bible which had to be interpreted placed people at the mercy of the interpreters. If, on the contrary, one would make the assumption that the Bible was to be read literally, then the need for any extensive reliance on others was considerably decreased. In this sense, fundamentalism and democracy had a certain intrinsic relationship.

A dread of interpretation may lie deep in the very nature of the human mind itself. Freud, for example, identified the mechanism of *resistance* in connection with the interpretation of psychological phenomena. Yet, placing the general historical resistance against all interpretation, including say, the kinds that Galileo made and which were deeply resisted by his opponents, together with Freud's observations, would suggest that we are dealing with a very general phenomenon.

One "treasure" exemplifying an aversion to induction that I would cite is a set of comments to be found in the 14th edition of the *Encyclopedia Brittanica* (1929) by Abraham Wolf, Professor of Logic and the Scientific Method at the University of

London, and editor of the Philosophy and Psychology section of the *Encyclopedia*. The article is entitled "*Induction*," but it virtually denies the legitimacy of induction. He introduces the topic by identifying induction as generalization.

Thus, we see that interpretation has had a bad name, at best a begrudging one. It is of interest that when R. A. Fisher (1925; 1935), who was associated with a number of new methods of statistics of small samples, began to promulgate them, he openly indicated that these methods provided a mathematics of induction, and that any other way of doing induction would no longer be necessary. The *calculus* of statistical inference would make moot all of such odiousness as was associated with induction when it was, as it were, merely a mental event of some people.

One of the main historical difficulties associated with the problem of interpretation is that interpretation has been identified as the problem of induction, and the problem of induction has been much too narrowly conceived as the problem of generalization from the particular to the universal – a kind of set of repetitions of what Whitehead called the "fallacy of misplaced concreteness." Indeed, the one great instance of induction of the kind that is being spoken of, and which is responsible for a good deal of the intellectual mischief of the world, is the generalization from particular errors that people make to a general pessimism concerning the nature of knowledge. Again we must recall the exercises of Descartes, who disciplining himself into doubt disciplined himself down to only the fact that he could know, in Popper's second world sense, as did the whole group of British empiricists and those whom they influenced, including Kant, and then those who were subsequently influenced by Kant.

One has no reason to doubt the possibility of knowledge. It is certainly self-evident that the human being can know things accurately, although in any particular instance one might be able to enumerate a variety of sources of error, even sources of error which one might not be able to check out. Descartes took it that he had to have at least one thing to know for certain to indicate that knowledge was possible, and selected his own existence as the object of that knowledge. Yet I would maintain that the fact that people can know things accurately is prior even to that starting point. In other words, there were certainly people on earth who knew things accurately before I, David Bakan, was born. And that would be prior to an exercise in which I, David Bakan, would arrive at the great conclusion that I, David Bakan, think, therefore I, David Bakan, exist.

Let us say that *interpretation is that conscious process whereby one infers the determinative features of the third world of the actual from the examination of the actual* and what one already knows of the third world. It is precisely because the determinative factors in the third world are so mentational, mental-like, in the first place that they are apprehensible by the mind. It is precisely because, for example, extension in space is informed by so mind-like a notion as "the square of the length of the hypotenuse of a right triangle is equal to the sum of the squared lengths of the other two sides" that the mind can apprehend it. The *Ding-an-sich* of Kant is not as stranger to us. It is precisely all of that beyond the actual of the world that we are on such intimate terms with should we be fortunate enough to have been reasonably well educated.

Interpretation is the obverse of generation. What is generation in one direction is interpretation in the other. The aim of interpretation is to rediscover the processes that were involved in generation.

It is of value to distinguish between the *probability of interpretation* and the *probability of generation*. Although the distinction is considerably more general, it may be worthwhile to make the distinction in conventional terms.

By careful examination of a set of coins, we allow that the probability of a head of each coin is ½. This is an examination of the static processes of the coin, not the behavior of the coin in a toss. Then by usual Bernoulli methods, we may calculate the probability distribution of 0 heads, 1 head, 2 heads, etc., if this set of coins was tossed an infinite number of times. In this case, we can consider that initial probability associated with each coin, the ½, as associated with generation, in that it is what *generates* the distribution.

But suppose alternatively we start with a set of coins, actually toss them many times, and record the distribution of the number of 0 heads, 1 head, 2 heads, etc. Suppose, further, we study that obtained distribution and come to the conclusion that the average probability of coming up heads of the coins was, say, 1/1.3 as being a much more likely value to have generated the actual distribution which we obtained. That is, we come to the conclusion that the coins were biased, or that there was some kind of bias associated with the tossing process to reduce the value of ½ to 1/2.3. In going from ½ to the distribution, we are alluding to a *generative process*; but when we go from the observation of the outlined distribution to the ½ or some alternative to it, we are involved in an *inferential process*, or an *interpretative process*.

The example just cited is numerical and appeals easily to the mind. However, the distinction between generative and the interpretative, as well as the relationships between them are far more general. Only to eradicate the linkage to the quantitative, consider the case of medical diagnosis, and the relationship of the disease process to diagnosis. On the generative side, if a person has a disease called diabetes, that is, there is inadequacy of carbohydrate metabolism due to either underproduction or utilization of insulin. It tends to produce symptoms of hunger, weight loss, thirst, itching, dryness of the skin, and high levels of sugar in the blood and urine. That is the process on the generative side. On the contrary, if a patient presents an array of symptoms to the physician, he then makes the interpretation that the person is suffering from the disease which is called diabetes mellitus, and identifies a factor called insulin which was not among the symptoms.

Logically necessary implication may be considered to be the limit of determination of $g$ of $x$. Let me review some basic features associated with classical logic. In the typical case of reasoning from premises of the form: "If $g$ then $x$," the two classical fallacies are "If not-$g$, then not-$x$," and "if $x$ then $g$." However, it is not fallacious to argue that if not-$x$, then not-$g$. This has often been asserted as follows: if $g$ implies $x$, then call $g$ the antecedent and $x$ the consequent.

One can go (1) from the affirmation of the antecedent to the affirmation of the consequent and (2) from the denial of the consequent to the denial of the antecedent, but one cannot go (3) from the denial of the antecedent to the denial of the consequent and (4) from the affirmation of the consequent to the affirmation of the antecedent.

If we allow that the relationship between a determinant in the third world, such as a law or generalization, and a particular observation is as the relationship *g* implies *x*, then we can appreciate the virtual denial of induction which is exemplified a few pages up from the quotation in the 14th edition of the *Encyclopedia Brittanica*.

The fact of the matter is that, at least by such simple logic outlined above, the inductive process would appear to entail a logical fallacy, the passage from the affirmation of the consequent to the affirmation of the antecedent, "one of the original sins of mankind." But as one of my students once put it (whose name I simply cannot remember –but who should be immortalized for this line), one cannot be both pure and fertile at the same time. So that if refraining from asserting antecedents on grounds of consequents is purity, we should be grateful for the violation of purity in history. For without this violation, there would be precious little knowledge. Indeed, induction is precisely the induction of antecedents which have as their consequents things that we patently perceive to be the case.

But rarely, even in the case of the most precise physical law, does a perfect relationship exist between *g* and *x*, between, say, the law of uniform acceleration of falling bodies and any actual falling body. Thus, although, for example, Galileo's law certainly informs the fall of the leaves from the tress, neither the individual fall of leaves, nor the average of the falls of leaves comes close to Galileo's law. This is not to say that Galileo's law is not informative of the fall of leaves from trees, but the relationship is more complicated, more remote, and more variable than we would determine simply from the study of his law.

To indicate the relationship between *g* and *x* of, shall we say, varying likelihood or looseness, let us allow

$L(x/g)$ to indicate the likelihood of *x* on the grounds of the generative function.
$L(g/x)$ to indicate the likelihood of *g* on the ground of *x*, the interpretative function.

But to indicate that events and interpretations never take place except under circumstances, let us allow also an *h* to represent the circumstances. We then have

$L(x/gh)$, the likelihood of *x* on the grounds of *g*, under circumstances *h*.
$L(g/xh)$, the likelihood of *g* on the grounds of *x*, under circumstances *h*.

There are certainly relationships between $L(x/gh)$ and $L(g/xh)$. The textual example is perhaps the paradigm example. If *g* is what is meant, and *x* is what is written, the writer's enterprise is the generative one, $L(x/gh)$, the likelihood of writing a particular set of strokes, *x*, on the grounds of his meaning *g*, under circumstances *h*. The reader's enterprise is represented by the obverse $L(Lg/xh)$, the likelihood of meaning *g* on the grounds that it is written in that particular set of strokes under the circumstances.

But for sure, the relationship is a bit more complicated. Let us write the relationship from the point of view of the reader:

$$L\left(g/xh\right)=\frac{L\left(x/gh\right)}{L\left(x/h\right)}\times L\left(g/h\right).$$

The likelihood of meaning *g*, on grounds of writing *x*, under the circumstances is as follows

1. Directly proportional to the likelihood of writing *x*, if the meaning *g*, under the circumstances.
2. Inversely proportional to the likelihood of writing *x* under the circumstances.
3. Directly proportional to the likelihood of meaning *g* under the circumstances.

I don't think that the logical character of thought processes was ever very much improved by the study of logic, and it is not my intention in any way to suggest that the application of logic can either improve or replace either of the two processes I have been discussing. I only wish to *show* the logic.

Indeed, the detailed elaboration of this kind of thinking has been carried out in great detail by none other than John Maynard Keynes in his *A treatise on probability* (Keynes, 1948). Keynes also wrote *The general theory of employment, interest and money* (1935) in which he puts forward a number of proposals which were adopted by F. D. Roosevelt as basic features of the so-called *New Deal*. Many of the economists who were advising Roosevelt and who were carrying out his new economic policies were enthusiastic devotees of Keynes. There is little doubt but that Keynes must be counted among the most important economists in the history of economics. To his many public accomplishments, Keynes did remarkably well in managing investments, to which he turned his attention the first thing every morning while he took breakfast in bed. One would think, therefore, that it would certainly be of value to consider a work which might give one some hints concerning the thought processes that might have been behind some of these contributions.

My view is that the symbolic rendition of logic is both important and limited. It is important in that it allows close examination of the detailed structure of inference apart from the particular content involved in any inferential process. However, it is limited in that symbolic logic is hardly the aid to logical processes in the way, for example, certain kinds of mathematics aid us in making important calculations.

Keynes sought to present a logic of probability which could be eminently general. The historical idea of probability had various sources. It had one beginning in connection with the insurance of commercial risks in Renaissance Italy; another, in connection with the rise of the life insurance enterprise in the seventeenth century. Still another in connection with jurisprudence in the assessment of evidence and of fair damages in accordance with probabilistic events which were intrinsically unrealizable (for example, the probable amount of earnings lost as a result of injury).

A coarctation of human consideration with respect to probability took place with the publication by La Place with his *Theorie Analytique des probabilites* (1812); by narrowing the scope of that which fell under the heading of probability, he succeeded in producing a clarity which was extremely seductive. It was precisely in this work that La Place expressed his view of the complete determinism of the universe, which is characteristically associated with his name today. All events in the universe are so completely determined by that state which is anterior to the present state, and the present state is the cause of the one to follow. An intelligence, he said, which

was sufficiently vast to submit the date of the universe from any moment to analysis would have open to its eyes all the past and all the future.

He gave a definition of probability which was to become classical, the ratio of the number of favorable events to the number of equally likely events. The die and the coin became the favorite cases in point. A die has six equally likely ways of falling and but only one way can it fall with a single dot on top. Therefore, the probability of an ace in the throw of a die is 1/6. A coin has two equally likely ways of falling, heads or tails. But heads is only one way. Therefore, the probability of a head is ½. The simplicity of this approach is eminently appealing and it made possible fairly extensive elaborations of the mathematics of probability.

Unfortunately, having become so concretized into quantities and frequencies, it almost completely foreclosed the other questions of probability, as, for example, virtually all of the kinds of problems of probability associated with jurisprudence, discovery in science, medical diagnosis, and the like. Such questions as, for example, what is the probability that the accused is guilty in the light of the evidence got very little enlightenment from La Place's probability theory.

Keynes' contribution was to have conceptualized the nature of probability as prior to both the application to aggregates and prior to a union with number. He conceived of probability theory as a branch of logic rather than mathematics.

> The terms *certain* and *probable* describe various degrees of rational belief about a proposition which different amounts of knowledge authorize us to entertain. All propositions are true or false, but the knowledge we have of them depends on our circumstances; and while it is often convenient to speak of propositions as certain or probable, this expresses strictly a relationship in which they stand to a corpus of knowledge, actual or hypothetical, and not characteristics of the propositions in themselves. A proposition is capable at the same of varying degrees of this relationship, depending upon the knowledge to which it is related, so that it is without significance to call a proposition probable unless we specify the knowledge to which we are relating it.
>
> To this extent, therefore, probability may be called subjective. But in the sense important to logic, probability is not subjective. It is not, that is to say, subject to human caprice. A proposition is not probable because we think it so. When once the facts are given which determine our knowledge, what is probable or improbable in these circumstances has been fixed objectively, and is independent of our opinion. The Theory of Probability is logical, therefore, because it is concerned with the degree of belief which it is *rational* to entertain in given conditions, and not merely with the actual beliefs of particular individuals which may or may not be rational (pp. 3–4).

Any version of the La Placean approach to probability essentially entails a certain notion of probability which is prior to the probability of the La Placean definition. The definition of probability as a ratio of favorable to equally *likely* cases essentially begs such a prior notion of probability which is not contingent on any counting. The Keynesian version of probability ties itself in with this more basic notion of probability. Keynes was particularly concerned with the failure of any frequency theory of probability to either explain or justify the problem of induction. One of his major criticisms

> related to the method by which the class of reference is to be determined. The magnitude of a probability is always to be measured by the truth-frequency of some class; this class, it is

> allowed, must be determined by reference to the premises, on which the probability of the conclusion is to be determined. But, as a given proposition belongs to innumerable different classes, how are we to know which class the premises indicate as appropriate? …Indeed the difficulties of showing how given premises determine the class of reference, by mean of rules expressed in terms of previous ideas, and without the introduction of any notion, which is new and peculiar to probability, appear to me insurmountable.
>
> Whilst no general criterion of choice seems to exist… the obvious course would be to take the narrowest and most specialized class… If the process of narrowing the class were to be carried to its furthest point, we should generally be left with a class whose only member is the proposition in question (p. 103 sic).

This may be exemplified by what, for many years, I have been calling the Garfinkle question. I call it that because it was first mentioned to me by Harold Garfinkle, and also because the giving it a particular surname reminds us of the essential point of the example. Harold once said to me: "Suppose I go to the doctor with some disease. The doctor says that since in only 10% of the cases of the disease is it fatal, I then have a 90% chance of surviving. For a few minutes I console myself with this information. But then, I can hold myself back no longer. 'Doctor', I say, 'I don't care about them. Can't you tell me what my chance of surviving is?'"

Garfinkle is right. Should one not at least break up all the cases of the disease into, say, subcategories of age, sex, race, occupation, etc., and compute the percentages of survival in each? And eventually one comes down to a call in which no one but Garfinkle can exist. And since within that cell there is no basis for computing a probability based on frequency, does Garfinkle's question have no meaning? Hardly. A good physician might well, on the basis of his understanding of the dynamics of the disease and his intimate knowledge of Garfinkle, make a reasonable estimate of Garfinkle's chance of survival for some given period of time. This is not to say that the physician's knowledge of relative frequencies associated with survival plays no role in his estimate of Garfinkle's chances of survival. But as such it is only *another* piece of evidence associated with his judgment. Under any circumstances, Garfinkle is quite right in pointing out that there are *two* questions here.

## The Human Mind as Object of Interpretation

Let me go back again to Popper's distinction among three worlds. His first world is "the world of physical objects or physical states." His third world, which I have discussed at length, is the "world of *objective contents of thought*, especially of scientific and poetic thoughts and of works of art." Here, let me pick up on Popper's second world, "the world of states of consciousness, or mental states, or perhaps of behavioral dispositions to act," and perhaps just affirm the opinion that Freud's *The interpretation of dreams* is a most noteworthy treatment of interpretation of the second world of Popper, and that it should stand as a major example.

We have seen how the first and second worlds dissolve into one another when one considers some of the developments of contemporary physics, in which information has emerged as an essential feature of the physical world. There is, of course,

the temptation that always arises out of Humeanism to identify the third world with the second, to reduce information to some kind of psychologism. But that must be avoided for various reasons, not the least being that it confounds our understanding of the psychological processes themselves. Consider the point of view of P. A. M. Dirac who was awarded the Nobel Prize in physics in 1933 for his work on quantum mechanics, which led to a great increase in our ability to control the behavior of atoms. Dirac's approach is to lean heavily on mathematics, on the one hand, and intuition, on the other. However, he strenuously avoids viewing nature in terms of our common visual images of things in space. That is, he strenuously avoids falling into the error of Humean psychologism. The laws of nature, according to Dirac's (1958) *Introduction*, "control a substratum of which we cannot form a mental picture without introducing irrelevancies." With great elegance and simplicity, he applied mathematical language to quantum mechanics. His mathematical descriptions then indicated completely new and unexpected phenomena which were later confirmed, such as the existence of the positron. The positron, a particle equal to the electron in mass, but positive rather than a negative charge, was indicated by the nature of the mathematical formulation. It was later actually discovered by Anderson, and opened a whole new area of investigation.

In this Diracian sense, modern physics has returned to the point of view of Newton, Kepler, Leibnitz, and the like, the founders of modern science, in conceptualizing the universe as in some sense more like a mental than a physical thing. However, that mental thing is more like human abstraction or human intuition than it is like visual images of physical objects taking up space. That mental thing which is the universe is more like that which we discover about the universe than the raw visual observation in which Humeanism was fixated. Since we are strangers to the universe and we can only make guesses about which is ultimate, how should we incline on the question as to whether the ultimate is primarily living and mentating, or whether physical objects (characterized by the law of conservation of matter which is no longer tenable) are ultimate, with life and mind simply the accidents of the arrangements of material bodies? Somehow, it seems to me that the former makes greater sense.

Let us openly allow metaphors. Suppose we allow that the universe as a whole is some kind of a great sea of vital and mentating substance within which, by some kind of congealment process, living and, eventually, mentating beings tend to emerge. Out of this merge, say, electrons which are characterized by four wave functions which satisfy four simultaneous differential equations, as Dirac demonstrated. The classical view that God was a mathematician metaphorically captured this mentational feature of the universe. The mentational character of the universe is at least as mentational as would be suggested by mathematics. But then if the universe is at least as mentational as would be suggested by mathematics, why would we believe that the mentational character is limited to mathematics-like mentation?

Allow then, on the basis of such considerations, that the universe is ultimately vital and mentational. What about the human being? The human being is patently vital and mentational, a vitality human beings share with other organisms. But the human mentational quality is unusually among organisms that share the planet.

Thus we have the existence of the human mind, Popper's second world. While it may be the case that the human mind is a relative newcomer to the universe, it is not the case that mentality and mentation are new to the world. Dirac was born in 1902, but the behavior of the electron which he described, and the existence of the positron, certainly existed long before 1902. Some 350,000 years ago, *Homo sapiens* emerged, the genus and species to which we all belong, characterized by a bipedal walk, large brain capacity, small teeth, proneness to use tools, and heightened ability over other hominids in the use of symbols in communication. It is very probable that Dirac's observations were valid prior to 350,000 years ago as they are today, in spite of the fact that there were no human beings around, certainly none who knew enough mathematics to write differential equations.

Human mentation is then a realization of the abiding mentational character of the universe. It is not the freak universal history; rather, it is an expression of it. This human mental world, Popper's second world, may then entertain or know the third world because it is of the same substance as this third world. The human mind is capable of knowing the world quite precisely because the world which is known is vital and mentational. This is what is really what is cogent about Plato's doctrine that the mind is essentially a kind of recollection. What it comes to apprehend in the world is precisely the features of the world which are thus mentational and vital. Hence, knowledge is possible.

The thoughts I have tried to formulate and express here in strong form are not really so remote from the deepest assumptions of the scientific enterprise. The latter is based on two assumptions (1) that *whatever exists is thinkable* and (2) *that which is thus thinkable is in the world and has determinative influence in the world*, in the sense that it is not contingent on having been thought by human beings. The ancient notion that the universe is itself vital and mentational, in the way human beings are, is consonant with these assumptions. And the appreciation of human beings as special expressions of the vital and mentational feature of the universe commends itself.

The assumption that *whatever exists is thinkable* has certainly not received universal assent in the history of human thought. Indeed, in order to appreciate the value of the assumption, it is essential to overcome a good deal of what has become commonplace in the general thinking of human beings. On the face of it, there is the counter-thought that only that which is thought is thinkable, the basic position of all skeptics. Plato in the *Republic* (514) presented an image of humankind as living in an underground chamber "with an entrance open to the light, extending along the entire length of the cavern, in which they had been confined, from their childhood, with their legs and necks so shackled that they were obliged to sit still and look straight forwards, because their chains render it impossible for them to turn their heads round; and imagine a bright fire burning same way off, above and behind them, and an elevated roadway passing between the fire and the prisoners, with a low wall built along it, like screens which conjurors put up in front of their audience, and above which they exhibit their wonders." In this way, one only sees the shadows and not the reality. Plato may have been optimistic about eventually being able to witness the good and truly real. Yet, nonetheless the image of the cave has been a

dominant one. It reached its culmination in Kant's doctrine of the *Dinge an sich*, the things in themselves. These things in themselves were the ultimate reality behind the phenomena and were unknowable. Positivism which I regard as the abandonment of the scientific enterprise, in spite of all of its protests of being consonant with science, essentially regards human beings as at best involved in a kind of ordering of observations rather than ever being able to think of what exists. The combination of two major tenets, that the major aim of all investigation should be the clarification of thinking and that assertions of what is the case (called "metaphysical assertions") can only be meaningless, was a program for autistic vacuity. The principle that the claim of a proposition to factuality was only legitimate if the means of verification were at hand worked against giving legitimacy to the guesswork which is essential to reaching that stage. And the conclusion of all statements about human values as meaningless effectively worked to delegitimize all human concerns about esthetics, morality, religion, and the ultimate nature of existence, essentially making the very investigator enterprise pointless. It makes less than legitimate the human program of exploring the nature of humankind to determine what we are, what we are becoming, and what we might have become. It reduces the legitimacy of experience outrage, injustice, danger, or ecstasy, the grounds of which are rarely clear.

To say that the universe is vital and mentational is to open one's self to the charge of advocating a kind of *animism*. The position that I have, and am now advancing, might properly be called animistic. However, I believe that the very idea of animistic as somehow being antithetical to rational and scientific thought is itself in need of examination. Animism, in its current use, was made popular by E. Tylor in his book *Primitive culture* (1871). The book was very much influenced by Darwin and was, indeed, praised by Darwin. Tylor attempted to extrapolate the Darwinian argument to the history of culture. Somewhat analogous to some kind of ancestral hominid from which humankind descended, Tylor identified a primitive ancestral belief which he called "animism." This animism, according to Tylor, had its origin as a primitive explanation of the difference between a living and a dead body, and as an explanation of dreaming. With the subsequent war between religion and science that took place in which Tylor's book played a significant role, the term animism became a euphemism for naïve belief in spiritual beings, linked to stupidity, ignorance, and fear. "Progress" came to be understood as transcending such primitive animism.

Long before Wilkie Collins and Arthur Conan Doyle taught that one should seek the motive for human action, Leibnitz – from whom Keynes openly drew his theory of probability also – had said that "Everything can be explained by efficient and final causes; but whatever concerns reasonable substances (the minds of men) is more naturally explained by considerations of ends, whereas other substances (bodies) are better explained by efficient causes" (Leibnitz, 1951, p. 89). What Aristotle called final cause is inextricably interwoven in all phenomena of mentation, if not both mentation and vitality. For a long time, it appeared that final causation was inextricably interwoven in nonconscious biological phenomena. Somehow, it has been believed by many that the deathblow was struck against final causation in the clearly inherited nonconscious biological phenomena by Darwin's *The origin of species*. I have never been persuaded of the latter. But even if the Darwinian stroke

against teleology in biological phenomena was totally cogent, the clear teleological character of mentation among human beings stands as empirical evidence against a simple Darwinian explanation of human consciousness and behavior.

One historically pathetic example of the attempt to transfer the Darwinian type of explanation to human behavior is worth a moment's attention. The essential pattern of the Darwinian explanation is to show that the combination of variation and then natural selection results in the development of positively adaptive inherited biological forms. Following in the wake of Darwin, a number of developments took place in American psychology. Most notable among these were the development of the so-called functionalist approach to psychology, and increased interest in the psychology of learning. For clearly, if all of the thrust of evolutionary development was toward the creation of more adaptive forms, we would certainly expect something consonant with that with human beings. The answer, of course, was that *as a result of natural selection, the human capacity to learn had emerged*. This gave rise to two notable sets of events within American psychology. One of these was the study of intelligence and its variation in the hand of Lewis Terman. In his development of the Stanford–Binet and the concept of intelligence quotient, Terman (1916) passionately clung to the notion that intelligence as so measured was hereditary. Thus, the Darwinian way of thinking was exemplified. For as he was able to show, the IQ varied among people, yet was correlated with the IQ of parents. Thus, clearly Darwin's principle was operating in connection with intelligence, since intelligence *was also clearly associated* with the ability to cope with life's circumstances.

Similarly informed, yet moving in a different direction, we have the work of Edward Thorndike. The mind was simply the sum of numerous connections of stimuli and responses. He had started with the observation of the behavior of a cat in the so-called puzzle box, a cage which contained some mechanism whereby a cat could unlatch a door to go out and get food. On the basis of trial and error, the cat would learn to unlatch the cage and get food. The paradigm that Thorndike developed was one in which the stimulus, $S$, was initially liked to a variety of response, $R1$, $R2$, … $Rn$, each connection having a different strength, or probability of occurrence. If any responses led to the obtaining of the reward, it would have a backward effect on that particular connection between the stimulus and that response, increasing the strength of that connection and the probability of the stimulus eliciting that response the next time. Thus, the cat "learned" to open the puzzle box because the obtaining of food had a backward effect on the connection between the stimulus and the response of, say, pulling the latch cord that opened the door. The strengthening of these connections was the essence of "learning."

The effect of Darwin was patent. Instead of variation of individual organisms, we have the variation among responses to a stimulus. Instead of an individual being "fitted" to the environment, we have the fittingness of the particular response in producing the reward. Instead of the survival of the individual organism, we have the survival of that particular stimulus–response connection, winning dominion over all other less reward-producing stimulus–response connections.

I think that Darwinism simply fails with respect to deepening our understanding of the nature of human mentation in both its existence and its complexity. If, for

example, we were to take Aristotle to heart on the *political* character of human existence, we might consider that "thing" which we call "natural right," as a critical feature of the analysis of any political condition, and consider the words of Leo Strauss (1953) on what he calls the "fundamental dilemma" of our time. He writes:

> Modern men are in the grip of the same difficulty. Natural right in its classic form is connected with a teleological view of the universe. All natural beings have a natural end, a natural destiny, which determines what kind of operation is good for them. In the case of human beings, reason is required for discerning these operations: reason determines what is by nature right with ultimate regard to our natural end. The teleological view of the universe, of which the teleological view of human beings forms a part, would seem to have been destroyed by modern natural science…. Two opposite conclusions could be drawn from this momentous decision.
>
> According to one, the nonteleological conception of the universe must be followed up by a nonteleological conception of human life. But this "naturalistic" solution is exposed to grave difficulties: it seems to be impossible to give an adequate account of human ends by conceiving of these merely as posited by desires and impulses. Therefore, the alternative solution has prevailed. This means that people were forced to accept a fundamental, typically modern, dualism of a nonteleological natural science and a teleological science of human being (pp. 7–8).

One of the great ironies associated with the modern world is that while, on the one hand, any number of people who profess expertise in the various sciences piously repeat their denials of final causality in connection with human behavior, the final causes, on the other hand, play out their roles as the major determinants of what transpires in the world. Every group of people in the world bases its decisions on what they take as their goals and values. Every conflict between groups of people in the world is based on the difference between goals and values. Huge proportions of all human effort are spent on attempting either to modify goals and values of people, or in responding to goals and values of people. One of the major projects of the world, from at least the beginning of Western civilization in ancient Egypt and ancient Mesopotamia, has been to find ways of manipulating or responding to human motivation as to win human beings to engage in cooperative enterprises as dictated by others, from bringing the Nile under control, accepting orders from superior officers in the military, working willingly on an assembly line, designing advertising material in an office building on Madison Avenue, and the enthusiastic selling of lingerie in the stores nearby the 5th Avenue.

Consider trade. We must certainly allow that trade is among the most significant determinants of human affairs from the microscopic to the macroscopic. There could be no comprehension whatsoever of the nature of the exchange of goods, services, currencies, capital, securities, favors, bribes, and gold; or such phenomena as recommendations, sponsorships, takeovers, stock splits, tariffs, taxes, customs, unions, wealth, and poverty; the rise and fall of the Dow-Jones Industrial Average; etc., without the Aristotelian final cause. The price associated with commercial transaction is essentially determined by final causes which are operative within the buyer and seller.

It would be inconceivable that there could be a system of justice which did not allow for, and take full consideration of, final cause in the form of intention, say, in

distinguishing murder from manslaughter. In the first, homicide is a result of direct intention, or of intention to commit another serious offense; in the second, it is the result of recklessness or uncontrollable emotional outburst. What distinguishes the two is intention, the final cause. Indeed, even the system of punishment which is built into law is based on the assumption that will operate in ways so as to avoid punishment, punishment avoidance as final cause. Or, equally, deterrence as a defense strategy makes no sense unless we allow the reality of final cause.

Consider power. Is power not a final cause? Is the obtaining of power over others not an end, the understanding of which helps us to interpret many examples of human behavior? Is it not the case that many people have reasoned in the way, say, James Mill (1939/1816) expressed the thought, and come to the conclusion that they should guide all their decisions on the basis of what gives them power? "The grand instrument for attaining what a man likes is the actions of other men. Power, in its most appropriate signification, therefore, means security for the conformity between the will of one man and the acts of other men. This, we presume, is not a proposition which will be disputed" (p. 864). However, wise men from Hillel to Jesus to Freud and to Alfred Adler have also been aware that if one is too relentless in the pursuit of this single-minded end, one is very likely to defeat its realization in actuality.

We have, when we think of the regularities of the world, to think also of the regularities that came into being by the human mind. Inventions need to be considered in much the same way as nonhuman regularities that are commonly thought of as the objects of scientific investigation. Some years ago, I picked up a book on electric motors in a library. I had been working on some problems of method similar to the ones I am discussing here and had gotten weary. As a distraction and relief from what I was doing, I occupied myself by browsing through that book. I can give no reference to it, but it does not matter. The book was full of illustrations. Many were photographs of various motors. There was a discussion of various parts and their construction, indications showing various windings, discussion of various control mechanisms, safety mechanisms, the properties of various designs, and much more that I paid no attention to and have forgotten. The book was large and contained a great deal of information – knowledge if you will – about electric motors. It was the kind of thing that could certainly occupy a student for a long time before he could master all of the material. Furthermore, the book was very "scientific" and very "objective" in virtually every sense in which we commonly take the meaning of these words.

I have subsequently found out by a bit of research that the electric motor was invented in 1833 and hence what I was reading *about* came into existence around that date. Suppose we continue on a hypothetical browse through the library: A book on geology on the earth's history which clearly presumes that what is true today is different from what was true a billion and more years ago. Indeed, there is speculation, based on radioactivity evidence, that the earth has a history of only about 5 billion years; thus, virtually all things on earth "only began," say, about 5 billion years ago. When we look into this geology book, we also find a brief discussion of something called "uniformitarianism," a critical assumption made by Charles Lyell, the founder

of geology, to the effect that currently discoverable processes are just as they were a long time ago. On the basis of this assumption, one can presume one or another historical process to have taken place. And we then realize that this is both a very consequential assumption and one which cannot be maintained with any great certainty, especially if we were to bring to bear the deep attitude of skepticism that characterized so much of our thought including Humeanism. We turn to some textbook on astronomy and behold they are taking about so many and so many light years – clearly making the assumption that the speed of light has always been the same.

We continue our imaginary browsing expedition through the textbooks on biology and the social sciences. Now certainly, the "laws" of biology, the laws of psychology, and the laws of economics could not have existed in the empirically based ways in which we boast of our scientific enterprise 5 billion years ago. Indeed, it is only on the basis of some deep rigidity that we have that we can allow the laws of, say, economics to have existed before the advent of *Homo sapiens*.

What about mathematics? Somehow that is something different. The ratio of the circle to its diameter is *pi*. And that is likely to have been the case even 5 billion years ago. And, as some theologians have speculated, even God in creation could not have created a universe in violation of the laws of logic and mathematics.

I do not feel that I can penetrate this question more deeply. Minimally, however, the point I would like to stress for my purposes is that *there is certainly* a case to be made that the laws of physics were formulated by taking account of some of the principles of mathematics.

We are again at the point at which we cannot go further. So we back away. But as we back away, we simply cannot avoid the observation that there is a creative process in the universe which is not different from the creative processes which we are more familiar with in ourselves.

I argued for a universe which is vital and mentating. I am now arguing for a universe which is creative of regularities. The deep assumption which we must make presses itself upon us. This is that human being and the universe have a very special relationship, the relationship of *microcosm to macrocosm*. This is hardly a new notion. It is to be found in Plato, and the neo-Platonists, the Gnostics, the Christian scholastics, the Jewish Kabbalists, Jakob Boehm, Paracelsus, Leibnitz, Lotze, Bergson, Teilhard de Chardin, Whitehead, and many others.

There is a particularly interesting convergence of human being, the microcosm, and the universe, the macrocosm. This is creation, creation de novo, the creation of something entirely novel in the history of the universe. That creation went on before the advent of human beings is little doubt. At some time in history, there was the creation of the organic molecule, and living forms, and plants and animals, and eventually human beings. That creativity, at the very least, preceded the creativity which is manifest in a person who might be capable of creating, say, an electric motor. But that creativity in the universe came eventually to create the creative human being, or came to express itself in the creative human being, who has been busy bringing all kinds of things into existence since human beings came to pass.

I invite the reader, as I am trying to bring this to an end, to join me in an exercise. This exercise is to read the very last section of Whitehead's (1929) *Process and reality*, which I will quote presently, in a particular kind of way. I believe there is no mind in the contemporary world which so fully experienced the classical mystical insight of the convergence between human being and the universe as did Alfred North Whitehead. He was heavily influenced by Plato's *Timaeus* in developing his thought, the work of Plato that most heavily influenced the whole Hermetic–mystical–kabbalistic line of thought throughout the history of subsequent Western civilization.

But there is a major limitation in Whitehead's thought reflected in the fact that he never quite appreciated Freud. The particular feature of Freud which is relevant to what I am trying to say is the recognition of the way in which deeply human material within the person unconsciously operated to determine his more conscious thought. In particular, Freud was sensitive to the play in which human beings draw from their own substance in their notions and images of God. Let us accept that in our reading of Whitehead when he talks of God. Let us allow that when Whitehead writes of God that he is drawing from his particular human stuff in order to do so.

But let us bear in mind that human beings are a very special product of creation in the universe, not only in expression of that creativity, but also one which shares that creativity. Let us allow that Whitehead, in his description of God, had tapped into the essentially creative parts of himself as a human being and expressed the nature of that creativity. Thus, if we allow this, we can take Whitehead's description of God partly as a description of the nature of being human projected in a kind of Freudian sense of human being fashioning his idea of God out of his own experience. I think that Whitehead had a profound understanding of the nature being human, and that this deep understanding of the nature of being human informed his speaking of God. By penetrating the meaning of his word when he speaks of God, we might learn something important about human nature.

Even one step further, human beings do not exist in the universe as a special accident in their vital, mentating, and creating characteristics. Let us allow that which we have been maintaining, that human being is a being which expresses some of the most important characteristics of the universe at large, and that what we might learn about the nature of being human might be more general than human being. The latter assumption is hardly different from the assumption which was made by Lyell that the causes of current geological changes can be assumed to be the same as the causes that have always operated on the earth, or the assumption that we make in spectro-chemical analysis of heavenly bodies, in which we make the assumption that the chemical radiation relationships that we observe locally prevail throughout the universe.

The following, are the very last words of *Process and reality*. I will quote the last paragraph of Section VI of the last chapter, and the last Section VII.

> Thus the universe is to be conceived as attaining the active self-expression of its own variety of opposites – of its own freedom and its own necessity, of its own multiplicity and its own unity, of its own imperfection and its own perfection. All the "opposites" are elements in the nature of things, and are incorrigibly there. The concept of God is the way in which we understand this incredible fact – that what cannot be, yet is.

And from Section VII:

> Thus, the consequent nature of God is composed of a multiplicity of elements with individual self-realization. It is just as much a multiplicity as it is a unity; it is just as much one immediate fact as it is an unresting advance beyond itself. Thus the actuality of God must also be understood as the multiplicity of actual components in the process of creation. This is God in his function of the kingdom of heaven.
>
> Each actuality in the temporal world has its reception into God's nature. The corresponding element in God's nature is not temporal actuality, but is the transmutation of that temporal actuality into a living, ever-present fact. An enduring personality in the temporal world is a route of occasions in which the successors with some peculiar completeness sum up their predecessors. The correlate fact in God's nature is an even more complete unity of life in a chain of elements for which succession does not mean loss of immediate unison. This element in God's nature inherits from the temporal counterpart according to the same principle as in the temporal world the future inherits from the past. Thus in the sense in which the present occasion is the person *now*, and yet with his own past, so the counterpart in God is that person in God.
>
> But the principle of universal relativity is not to be stopped at the consequent nature of God. This nature itself passes into the temporal world according to its gradation of relevance to various concrescent occasions. There are thus four creative phases in which the universe accomplishes its actuality. There is first the phase of conceptual origination, deficient in actuality, but infinite in its adjustment of valuation. Secondly, there is the temporal phase of physical origination, with its multiplicity of actualities. In this phase full actuality is attained; but there is a deficiency in the solidarity of individuals with each other. This phase drives its determinate conditions from the first phase. Thirdly, there is the phase of perfected actuality, in which the many and the one everlastingly, without the qualification of any loss either of individual identity or of completeness of unity. In everlastingness, immediacy is reconciled with objective immortality. This phase derives the conditions of its being from the two antecedent phases. In the fourth phase, the creative action completes itself. For the perfected actuality passes back into the temporal world, and qualifies this world so that each temporal actuality includes it as an immediate fact of relevant experience. For the kingdom of heaven is with us today. The action of the fourth phase is the love of God for the world. It is the particular providence for particular occasions. What is done in the world is transformed into reality in heaven, and the reality in heaven passes back into the world. By reason of this reciprocal relation, the love of the world passes into the love in heaven and floods back again into the world. In this sense, God is the great companion – the fellow-sufferer who understands.
>
> We find here the final application of the doctrine of objective immortality. Throughout the perishing occasions in the life of each temporal Creature, the inward source of distaste or of refreshment, the judge arising out of the very nature of things, redeemer or goddess of mischief, is the transformation of itself, everlasting in the Being of God. In this way, the insistent craving is justified – the insistent craving that zest for existence be refreshed by the ever-present, unfading importance of our immediate actions, which perish and yet live evermore.

*Thus*, I want to stress that what is cited here is only the last words of *Process and Reality*. Yet in many senses, these few paragraphs sum up the vision that the book as a whole expresses.

*Thus the universe is to be conceived as attaining the active self-expression*. Whitehead fully accepts what may be thought of as the Judeo-Christian conception of time. Whatever transpires does so within the context of time, within the context of historical time. In the way in which the Bible is a historical narrative, beginning

with "in the beginning" and then the sequence of creation, Adam, Noah, Abraham, etc., with an abidingness over all of it, so does Whitehead understand time. He conceives of all of it as a process, with "the present being the immediacy of teleological process whereby reality becomes actual" (p. 327). The distinction between the real and the actual is very important. The real, the total reality that is the universe, is the process of "attaining to active self-expression, becoming at each present moment, that which is actual. And that which is being expressed is a certain self" in the process of expression.

*Of its own variety of opposites*, let me allude back to the discussion in connection with Boltzmann, and what he contributed to measurement, for it will help to understand at this point. I argued that the major device that was used by Boltzmann was to compare the actual and the possible. The measure of an actual state of a gas was by reference to the total number of ways in which the gas could *possibly* be. But, in the world of possibility, as contrasted with the world of actuality, there was contradiction, for the possibilities which are *all present* in the world of possibility are of such a nature that they cannot coexist in actuality. Only one of them can exist in actuality.

Whitehead enumerates some very important contradictions which critically characterize *reality*, the *Reality* which is the topic of his book, together with *Process*: *freedom and its own necessity, of its own multiplicity and its own unity, of its own imperfection and its own perfection*. Let me repeat that we should be thinking of something like the human mind as the source of these considerations. And allow ourselves the option of not giving Whitehead so much credence for telling us about the nature of the universe, but giving him a great deal of credit for having profoundly understood the human mind. I, of course, will want to back away from this, presently. But the reader who cannot follow on the assumption that the universe as a whole is vital, mentating, and creative, might, if so minded, at least appreciate the psychology here, if not the metaphysics.

*Variety of opposites*… Let us take this psychologically for a moment. One of the most important contributions that Freud made to the understanding of the human mind was simply to indicate the importance of *conflict*. Now conflict is interesting when looked upon in terms of what is actual. *There is never any conflict in what is actual*. There may be conflict in purposes, or intentions, or goals, or interests. But what is in actuality is. When two people are fighting, at any instant there is a blow which is a blow, a drop of blood which is a drop of blood, etc. But the conflict is an abstraction that exists only outside of what is actual. Conflict, as it were, may exist within a person. But when the actual event takes place, that is that, and conflict is not in it any longer.

*All the* "*opposites*" *are elements in the nature of things, and are incorrigibly there.* Whitehead put the quotation marks around the word "opposites" here, like he is quoting himself from the previous sentence. In this sentence, he is essentially asserting the objectivity of the contradictions in reality. They are *incorrigibly there*. They are incorrigible, impervious to modification, like the incorrigible child, and *there*, in the sense of being in the universe and part of reality. I would suppose that, in a certain sense, Whitehead says this in order to show that he resists the connection

that might stem from some post-Kantian denial of the impossibility that one might know what reality is ultimately, or that might stem from some misplaced rationalism that would not allow contradictions to exist in the universe, a rationalism based on a mistaken extrapolation from the actual to the whole universe.

*The concept of "God" is the way in which we understand this incredible fact – that what cannot be, yet is.* What is incredible is the existence of contradiction in reality. Contradiction is what cannot be, but it is what cannot be in actuality. Indeed, as was already discussed, the what-cannot-be-ness of contradiction in actuality is one of the main bases of all detection. It is the ultimate method Sherwood Homes and the like to take serious account of the fact that *contradiction cannot exist in actuality*. But contradiction can exist in the realm of possibility, in the realm of thought, in speech of liars and persons who are in error, among impulses, interests, etc.

*Thus, the consequent nature of God…..* The consequent nature of God has to do with God receiving. "The consequent nature of God is the fulfillment of his experience by his reception of the multiple freedom of actuality into the harmony of his own actualization. It is God as really actual, completing the deficiency of his merely conceptual actuality" (p. 530).

*…is composed of a multiplicity of elements with individual self-realization. It is just as much a multiplicity as it is a unity; it is just as much one immediate fact as it is an unresting advance beyond itself.* There are two themes here which run through all of Whitehead's thought on this: the idea of organism as consisting of a kind of hierarchy of cell, organ, individual organism, society, and universe (equals God), on the one hand, and of organism in the sense of always being in process of becoming what it is not yet in actuality, on the other hand.

And then he writes "*Thus the actuality of God must also be understood as the multiplicity of actual components in process of creation.*" But this totality of organization which is the process of becoming is what he calls God, and which has to be actual, for then there would be no actual universe. Then "*This is God in his function of the kingdom of heaven.*" Whitehead's faith in the confidence that people can understand existence ultimately, rejecting completely the defeatism which makes people believe that they must be ultimately alone in their thoughts about ultimate things, that they are unknown *Ding-an-sich* and the like.

*Each actuality in the temporal world has its reception into God's nature….* For Whitehead God not only has an expressive feature in the *actuality in the temporal world*, but is also a *reception*. What transpires in actuality enters into God's nature.

*The corresponding element in God's nature is not temporal actuality, but the transmutation of that temporal actuality into a living, ever-present fact.* What Whitehead is saying here may be interpreted as an assertion of the reality of historicity, as, for example, exists in the Judeo-Christian tradition: standing at the foot of Mt. Sinai for the Jews; the crucifixion of Jesus for the Christians. *Each is the transmutation of that temporal actuality into a living, ever-present fact*. Or, we may allude to Freud. For Freud, each childhood experience is transmuted into *a living, ever-present fact*, while yet, no longer being actual.

And so it is with personality. *An enduring personality in the temporal world is a route of occasions in which the successors with some peculiar completeness sum up their predecessors.*

Note here the deliberate syncretism of personality and God. Up to before the last sentence Whitehead was speaking of God. Now he shifts to human personality, clearly. And refers to personality as *correlated* with God's nature, *the correlate fact in God's nature…*

*…is an even more complete unity of life in a chain of elements for which succession does not mean loss of immediate unison*. Here again, the problem of the two notions of organism and the tension between them is evident. Whereas in, say, the human organism there may exist a lack of unity between the organism of *immediate unison* and that of *succession*, in the organism which he calls God, the organism that contains all other organisms, *there is an even more complete unity of life in a chain of elements for which succession does not mean loss of immediate unison*.

*This element in God's nature…* What element in God's nature? Let me go back to the second law of thermodynamics. When that was first advanced, the irreversibility associated with it was brought to bear to a conclusion that the total entropy in the universe can only increase and that there is an inevitable downgrading of the universe. Indeed, the work of Boltzmann appeared to show the necessity of the process based on the idea that nature must move in the direction of a low probability to a high probability. Thus, the *element in God's nature* is precisely an even more complete unity of life – let us say low entropy – *in a chain of elements for which succession does not mean loss of immediate unison.*

But the level of generality at which we have taken what Whitehead has said is too limited. It is on a higher level of generality. *This element in God's nature inherits….* We must understand Whitehead's background in logic. There is a serial ordering of which the temporal ordering is a special case: "any member of the nexus… constitutes a "cut" in the nexus, so that… this member inherits from all members on one side of the cut, and from no members on the other side of the cut…" (p. 51). So we must understand this in terms of the beginning of the paragraph, that "*Each actuality in the temporal world has its reception in God's nature*," as the contingency of God's nature on the temporal world. And thus Whitehead writes, "*This element in God's nature inherits from the temporal counterpart….*" God draws his nature from the temporal world… "*according to the same principle as in the temporal the future inherits from the past*." That principle is, of course, the principle which is expressed in the notion of *inherit*. Temporal inheritance is a special case of inheritance, but it is *only* a special case of it; the principle of inheritance applies to the relationship between person and God, and in this sense, God inherits from human being in the nontemporal sense, as human being inherits from God in the temporal sense. *Thus in the sense in which the present occasion is the person now, and yet with his or her own past, so the counterpart in God is that person in God.*

*However, the principle of universal relativity is not to be stopped at the consequent nature of God*. Whitehead has been talking of the consequent nature of God, the fulfillment of his experience by his reception, etc., and what he has been talking of is how God receives the world of temporal actuality, from the world of concrete events which, however, impermanent in actuality, do not ever completely terminate.

*This nature itself* is the nature which has thus been received, the consequent nature. *This nature itself passes into the temporal world…* Actuality now becomes

informed by *this nature*. This nature *passes into the temporal world*. Recall the earlier discussion of Szilard's elaboration on the idea of the Maxwell Demon who is "a sort of *deus ex machina*… who is continuously and exactly informed of the existing state of nature and who is able to start or interrupts the macroscopic course of nature at any moment without expenditure of work" (Szilard, 1929/1964, p. 302). In that paper, Szilard declared that it could be that there is a "decrease in entropy in the thermodynamic system by the intervention of intelligent beings," the title of his paper. And that the proper way to conceive of this is in terms of a unified view of the negation of entropy by intelligence as part of the system. Essentially Szilard outlines how information or intelligence "*passes into the temporal world*," – using the words of Whitehead. Let me now also note the remark made by Lord Kelvin about the way in which certain effects are produced in the animal body: "Whatever the nature of these means, consciousness teaches every individual that they are, to some extent, subject to the direction of his will. It appears… that animated creatures have the power of immediately applying to certain moving particles of matter within their bodies, forces by which the motion of these particles are directed to produce desired effects." The whole sentence of Whitehead, then, is "*This nature itself passes into the temporal world according to its gradation of relevance to the various concrescent occasions*."

Consider *gradation of relevance*. While the idea of relevance may appear obvious, the fact is that none of the common views of the scientific and intellectual enterprise give much account of it. How come certain laws in physics, say, apply to some events and not to others? And how come, when it is discovered that the same laws may apply variously to, say, an astronomical event and a microscopic event, it is met with surprise? Or how come identical mathematical relationships apply to events A and B, but not to C and D? The only place that I know of is given in Keynes' *Treatise on Probability*. His idea is roughly as follows – paraphrasing the logic loosely – if the probability of any $x$ is changed as a result of the introduction of some $h$, then $h$ is relevant to $x$ (p. 54).

*There are thus four creative phases in which the universe accomplishes its actuality*. Whitehead's characterization of this creative process is sufficiently general so as to characterize both creativity in which human beings are the agents, and the creativity by which the *universe accomplishes its actuality*. It is sufficiently general so as to characterize, say, the fashioning of the electric motor, as the fashioning of personality, or features of personality.

The universe is at once both the receiver from actuality and the creator of actuality. The creation comes back upon it from actuality, and swerves the creation of actuality. The four phases: *conceptual origination* and *physical origination* are the first two. At this point, there is *deficiency in the solidarity of individuals with each other*; say, cells or organisms are people deficient in their solidarity with each other. Third, *there is a phase of perfected actuality*….; say, the various cells in the organisms are properly organized into organs and into well-functioning organisms; or, say, harmony among people is achieved.

Whatever anything may be, in actuality it is without contradiction. But reality is greater than actuality. The *perfected actuality* may be recognized as the Leibnitzian best of all possible worlds, spoofed by Voltaire.

*In the fourth phase, the creative action completes itself. For the perfected actuality passes back into the temporal world, and qualifies this world so that each temporal actuality includes it as an immediate fact of relevant experience*. In this sense, all history remains, informing every event that takes place.

In this sense, *the kingdom of heaven is with us today*. If God, as he has indicated, is the receiver, and if God receives "the multiple freedom of actuality into the harmony of his own actualization" and provides it for relevant occasions, then "*The action of the fourth phase is the love of God for the world. It is the particular providence for particular occasions*."

And there is this deep reciprocity: "*What is done in the world is transformed into reality in heaven, and the reality in heaven passes back into the world. By reason of this reciprocal relation, the love of the world passes into the love in heaven, and floods back again into the world. In this sense, God is the great companion – the fellow sufferer who understands*."

Here I think Whitehead fails. For suffering is in the actual. And here is the merit of Voltaire's spoof on Leibnitz' the best of all possible worlds. It may be precisely because pain and suffering are uniquely in the actual that pain and suffering have so resisted conceptualization (see my *Disease, pain, and sacrifice,* 1968). The kind of actualization associated with God which Whitehead allows is not enough. And his *God is the great companion – the fellow sufferer who understands* is truly Whitehead's *deus ex machine*, the god from the machine, as in the ancient Greek drama, in which the god was let down by a crane to resolve a complex plot and end the performance. Whitehead yielded to the temptation to end his book by ending the story. I will try to learn from his mistake and try not to commit the same one.

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# Chapter 4
# A History of the Rorschach Test and an Analysis of Bookplates of Famous Psychologists

## Introduction

The notion that a person's bookplate can reflect the designer's personality came to me many years ago while I was visiting Robert Wozniak, a friend and fellow collector who was also interested in bookplates of famous psychologists. Rob had a collection very similar to my own. When he showed me some of the items in his collection, I pointed out how some of the plates might, symbolically speaking, resemble the character of the person who made them. We both agreed that it would be a wonderful project to make a collection of these bookplates and write a paper together illustrating how it is possible to use bookplates as a projective technique for assessing the personalities of the famous psychologists who created them. Many years have passed since that meeting. Because Rob does not live very close to me, we did not have an opportunity to collaborate on this project. Recently, I decided to launch the project myself and then enlisted the collaboration of John Gach.

The retrospective use of projective techniques, especially with bookplates as the stimulus, is a project whose time has come. Having said that, we should note that the Rorschach Inkblot Test, as originally conceived, was intended to project the unconscious elements of an individual's personality. The term for projective tests or techniques is a relatively recent one, having become part of psychological nomenclature

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during the late 1930s.[1] The projective method, as it was called when examining the personality of an individual, goes back much earlier than the late 1930s. William Stern, a prominent German psychologist, spent much time studying the relationship of a person's personality as it related to individual differences, work that he had begun before 1900. Some of Stern's early work even applied to the psychology of testimony in the court room.[2] Shortly before World War I, the Swiss psychiatrist and psychoanalyst Hermann Rorschach (1884–1922) began to experiment with the possibility of using inkblots to compare normal, neurotic, and psychotic individuals, first using them with school children in 1911. It is known that Rorschach was familiar with the game "Klecksographie" (blotto), which was popular in Switzerland. But the immediate stimulus for completing work on his test "came from the research work of Szymon Hens. A young Polish student from Warsaw, Hens had studied in Zurich from 1912 to 1917 and worked for a time at the medical polyclinic there. He had developed an inkblot test of his own and, with the approval of Professor Bleuler, had published it in his doctoral dissertation at the end of 1917. Of course, this publication reminded Rorschach of his old experiments … and returned him to conceptions that had fascinated him since then."[3] After the war, between 1921 and 1922, he

[1] The concept of projection originates in Freud's analysis of Daniel Paul Schreber, "Psychoanalytische Bemerkungen über einene autobiographisch beschreibenen Fall von Paranoia (Dementia Paranoides)," published in Band 3 of the *Jahrbuch für psychoanalytische und psychopathologische Forschungen*, 1911; English translation by Alix and James Strachey as "Psychoanalytic Notes on an Autobiographical Account of a Case of Paranoia (Dementia Paranoides)" in volume 3 of the Collected Papers (1925), pp. 387–466 and reprinted in volume 12 of the *Standard Edition*. By the late 1930s, the term "projection" in the sense of interpreting something subjective as objectively real had widely dispersed through psychiatry and clinical psychology. "Projective test" is another matter entirely. The 1940 first edition of Hinsie and Shatzky's standard *Psychiatric Dictionary* defines "projection" and has an entry for the Rorschach test (the definition of which uses no variant of "projective"). "Projective test" first appears only in the 1953 supplement to the Dictionary under "method, projective." By the time that English and English's *Comprehensive Dictionary of Psychological and Psychoanalytical Terms* appeared in 1958, there were entries for "projection," "projective technique," "projective test," "projectivity," and three entries under "Rorschach."

[2] Born in Berlin, William Stern (1871–1938) published his first work on individual differences in 1900, *Über Psychologie der individuellen Differenzen* (Leipzig: Barth, 1900), which was completely rewritten in and retitled for its second edition, published *as Differentielle Psychologie in ihren methodischen Grundlagen* (Barth, 1911). His first publication in forensic psychology was his 1902 paper "Zur Psychologie der Aussage" in Vol. 22 of *Zeitschrift für die gesamte Strafrechtswissenschaft*, which turned into his encyclopedic *Beiträge zur Psychologie der Aussage* (Leipzig: Barth, 1903–1906, 2 vols.). There are numerous accounts of Stern's life and work, a reasonably brief and very readable one being Fritz Heider's article on Stern in vol. 15 of the International Encyclopedia of the Social Sciences, pp. 262–265.

[3] Henri Ellenberger, "Life and Work of Hermann Rorschach," p. 209, in *Beyond the Unconscious: Essays of Henri Ellenberger*, edited and introduced by Mark S. Micale, Princeton University Press, (1993). Ellenberger's paper originally appeared in 1954 in *Bulletin of the Menninger Clinic* (18 no. 5, September 1954). Szymon Hens's thesis *was Phantasieprüfung mit formlosen Klecksen bei Schulkindern, normalen Erwachsenen und Geisteskranken* (Zurich: Speidel & Worzel, 1917). It is very rare; OCLC records only one copy, at the National Library of Education in Europe, which suggests that like many theses, it was not really published in the ordinary sense, but printed in a small number of copies for the author's distribution.

created and published what we now know as the Rorschach test. Originally it was entitled *Psychodiagnostik* (Psychodiagnostics), and the test included 10 inkblots printed on stiff cardboard; five in color and five in black and white. Both the test cards and accompanying manual were first published in 1921 in Bern, Switzerland, by Ernst Bircher. From the 1932 second edition, they were published by Hans Huber, also in Bern. In 1942, Huber published an English translation of the manual, which from 1949 was distributed in the USA by Grune and Stratton Inc. in New York City, with Grune's imprint also on the title page. The Rorschach test is still being extensively used as a projective technique measuring the imagination of the subject and his personality, both normal and abnormal, though it tends now to be used differently in Europe and the USA.[4] After World War II, the test became one of the standard projective tests used by the burgeoning legion of clinical psychologists – between 1949 and 1975, Grune and Stratton issued eight editions of the manual.

In the pages that follow, we shall describe a variation on the theme of projective techniques in which we do not assume that the projections are totally unconscious, but rather that they may display various degrees of awareness, on a spectrum as it were, or what we prefer to call degrees of "expression ripe or expression unripe" – terms originally used by Emil Froeschels, a prominent Viennese (and later New York) psychiatrist and speech pathologist.

The origins of inkblots can be traced to the middle of the nineteenth century. As Henri Ellenberger briefly explained in his 1970 history of the roots and antecedents of dynamic psychiatry,[5] Justinus Kerner was probably the first person to produce inkblots for an interpretive and loosely projective purpose. A German poet and physician, Kerner used inkblots as a source for writing poems associated with the images. He called these *Klecksographien*, and they remained unpublished in his lifetime. Almost certainly, though, they were the source for the Klecksographie game that became very popular in German-speaking central Europe after the turn of the century. Ellenberger described how Kerner produced them: "As a pastime he used to make inkblots on a sheet of paper, fold it and elaborate the resulting figures, giving them fanciful shapes and writing verses under each of them. These pictures, he said, were ghosts and monsters to which he ascribed a place in *Hades* (the transitory home of spirits)."[6] One should note that Kerner believed in ghosts, so we should not assume that he was speaking figuratively. Kerner's inkblots were quite

[4] In the USA, John E. Exner's reformulation of the Rorschach as a comprehensive system now dominates the field. First published in 1969 in a single volume as The Rorschach Systems (NY: Grune & Stratton), Exner's work grew into three quarto volumes, with the first volume on Basic Foundations appearing in 1974, the second volume on Current Research and Advanced Interpretation in 1978, and the final volume on children and adolescents in 1984, with later revisions of all three volumes.

[5] Ellenberger, Henri. *The Discovery of the Unconscious.* NY: Basic Books, 1970, pp. 78–81.

[6] op.cit., p. 81.

similar to what Rorschach devised for his personality test, the major difference being that Kerner created his own inkblots and wrote poems to interpret what they meant to him.

Some years later in 1896, Ruth McEnery Stuart and Albert Bigelow Paine published in the USA a juvenile book *Gobolinks, or Shadow-pictures for Young and Old*, in which poems accompanied the "shadow-pictures."[7] Most likely their book was produced without any knowledge of Kerner's inkblots.[8] In 1977, Mark Altschule briefly discussed the use of inkblots before Rorschach, mentioning a book entitled *The Ghosts of my Friends* written by Cecil Henland, editions of which were published sometime between about 1908 and 1934.[9] Henland's book opens with a set of directions that read as follows: "Sign your name along the fold of the paper with a full pen of ink and then double the page over without using blotting paper." After carrying out these instructions, the individual produces a kind of symmetrical inkblot. Obviously, this is not the same technique that Rorschach used some 13 years later when he invented his inkblot test. Rorschach provided the blots for his subjects; whereas Henland had the individuals create the blots themselves with their own signature. Henland was certainly not a psychologist, but rather a creative inventor of a parlor game. To the best of our knowledge,

[7] Both were quite popular writers in their time. This was their only collaboration. Stuart (1849–1917), né McEnery, was born in Louisiana; married in 1879 Alfred Oden Stuart, an Arkansas cotton planter; from 1891 to 1917 published more than 20 books, most being collections of humorous short stories previously published in *Harper's* and other magazines. She was best known for her sensitive depiction of post-Civil War plantation black life and for her use of black dialect. Albert Bigelow Paine (1861–1937) is best known now as Mark Twain's literary executor and officially anointed biographer. From 1893 on, he published numerous novels for both adults and children. See the DAB entries for both (Vol. 18, p. 177 for Stuart and Vol. 22 [Suppl. 2], pp.509–510 for Paine).

[8] Justinus Andreas Christian Kerner (1786–1862) was a Swabian physician and Romantic poet. Though in the Anglophone world he is mostly known now for his 1829 *The Seeress of Prevorst* (English translation 1845, item #250), he is much better known in German-speaking central Europe for his romantic poetry. His collected works (obviously not including the *Klecksographie*) were first published in 1849, eight volumes in two physical volumes. A two-volume edition of his selected poems appeared in 1878–1879. Then nothing until 1900, when it seems Kerner was "rediscovered." Between 1900 and the beginning of the World War I, at least three different sets of his collected works appeared, while in 1905 a four-volume set of his collected poetry was published. Though there were no editions of his poems in English, his poetry did appear in numerous nineteenth- and early twentieth-century American anthologies of German poetry. Bayard Quincy Morgan counted 25 anthologies with Kerner's poems, see his *A Bibliography of German Literature in English Translation*, Madison, WI: 1922, p. 287. Ellenberger gives a wildly incorrect date for the separate publication of Kerner's Klecksographie. Not only was it not published in 1857 (which was the year that Kerner created the images and accompanying poems), but it was also not published as a separate book, at least so far as we can determine with certainty, until the second decade of the twentieth century. They must, however, have been reproduced in the various collections and selections of Kerner's works produced from 1900 on.

[9] *Origins of Concepts in Human Behavior: Social and Cultural Factors.* Washington/London: Hemisphere Publishing Corporation/A Halsted Press Book, Wiley (1977).

*The Ghost of my Friends* was used as a parlor game during the first three decades of the twentieth century. In the Rieber collection, there are two examples of this game: Henland's and a book by an anonymous author entitled *Your Hidden Skeleton*, which gives the same directions as Henland's book, except that the author warns you not to put a period at the end of your name. Perhaps the author was trying to be somewhat objective, for the period is not part of one's name. Published in circa 1909 (UCLA's copy bears an inscription with that date), *Your Hidden Skeleton* was probably used for many years afterward, the evidence for which is that the handwritten date "1930" appears on the last page of the Rieber copy, indicating that the game was used at least up until then.

In his paper on Rorschach, Ellenberger notes – amazingly – that in 1903 Rorschach was known to his school mates as "Klex" (inkblot).[10] Apparently unaware either of Ellenberger's 1954 paper or the discussion in *The Discovery of the Unconscious*, Altschule's account is incomplete. As we now can see, the whole story is much more complicated. There may have been a number of events occurring without others being aware of what was taking place. There is little question that Kerner was the first to use inkblots as a means to express some aspects of one's self. We would suggest that historically speaking, the emergence of the Rorschach test was a rather complicated one. Kerner's inkblots and poems were after 1900 widely known in German-speaking central Europe and its offspring the Klecksographie game seems to have become quite popular. Meanwhile, *Gobolinks* and Henland's parlor games (and who knows how many similar games) were being distributed in America shortly after the turn of the century. It seems to us quite possible that the Henland game may have been influenced by the German Klecksographie game, given the wide popularity of the latter. Ellenberger, on the contrary, was not aware of the American parlor game books mentioned above. There may well have been inkblot games in other European countries too. The previously mentioned early examples of the use of inkblots may be viewed as a growth process and inspiration to Rorschach's invention.

A more recent variation on this theme is discussed by Rutherford. The author mentions B.F Skinner's early and rather brief involvement with personality assessment and projective testing. However, earlier in his career, Skinner developed an instrument he named *The Verbal Summator*, which at one point he referred to as a device for sneering out complexes much like an auditory analog of the Rorschach inkblots. Skinner's interest in the projective potential of his technique was relatively short lived; but whereas he used the verbal summator to generate experimental data for his theory of verbal behavior, several other clinicians and researchers exploited his potential and adapted the verbal summator technique for both research and applied purposes. The idea of an auditory inkblot study struck many as a useful summation and the verbal summator spawned the tautophone test, the auditory apperception test, and many others (Rutherford, 2003).

[10] *Beyond the Unconscious*, p. 196.

The notion behind our bookplate projective technique is twofold. First, it has a more serious side to it in terms of providing a frame of reference for understanding the character, personality, and perhaps the behavior of famous psychologists who have chosen to have their own bookplates. On the contrary, the lighter side of this project is that it might be used for amusement or as a "game." For example, historians of psychology might wish to engage in this activity for fun. Consequently, we ask readers to keep both aspects in mind as they read our discussions of the bookplates. Generally speaking, bookplates can be understood by way of their semiotic and hermeneutic meanings. In other words, how are the signs related to their symbolic meaning and, consequently, how are they connected to the personalities of the famous psychologists who have chosen them? We hope that our interpretations will stimulate the reader's own interpretations, which may in some cases be even better than ours.


**Thomas Bray** (1656–1730)
**George Berkeley** (1685–1753)
**Samuel Johnson** (1696–1772)

This bookplate, which bears the title *The Gift of a Society for propagating the Gospell in Foreign Parts, 1704*, probably symbolically depicts both Bray and Berkeley. The symbolic figure is standing at the helm of a ship approaching the shores of the New World. A prominent English clergyman, Bray was sent in 1696

to organize the Anglican Church in Maryland. One might consider his activities analogous to those of Andrew Carnegie in the nineteenth century, for his major preoccupation became founding parish libraries, of which 80 in England and 39 in North America were set up through his efforts. He established over 80 libraries in England and approximately 30 in America. The first American library he founded was in Annapolis, Maryland, with the capital of Maryland being named after Princess Anne (Annapolis) in return for her generous contribution. Bray and Berkley worked together on many projects, particularly the so-called Bermuda Colony plan for education in the New World. Bray engaged Berkeley to sail to the Bermuda colony to start an institution for learning. The Bermuda plan failed, so he then went on to the New England colonies, staying for several years in the area now known as Providence, Rhode Island. His house still remains there as a museum. He brought the first large gift of books to both Harvard and Yale during that period. Also, while he was in America he was in contact with Samuel Johnson Junior, the first president of King's College, now Columbia University; Johnson was at that time living in the area that we now call Connecticut. The correspondence between Johnson and Berkeley can be viewed in the Columbia library's special collection. Berkeley influenced Johnson's ideas and the bookplate that we see next to "The Gift of a Society…" is the bookplate of William S. Johnson, the second president of Columbia University, with all of the appropriate heraldry of the crown on top of the lion designating the heritage of the Anglican family that the Johnsons belonged to. Samuel Johnson Sr. had the same plate as his son except for the name. These are the earliest bookplates we have been able to locate that represent the emergence of psychology during the colonial period.

### **William James** (1842–1910)

William James is the dominant figure in the history of American psychology. He was instrumental in creating one of the first psychological laboratories and in creating the APA. His *Principles of Psychology* is a classic text in its field. Although he spent his later years pursuing general philosophical problems as well as psychical research, he is considered by many as the father of psychology in America. Like Freud, he chose not to make a bookplate for himself. This choice was more than likely based on the pragmatic approach to life for which he was famous. He had a huge library and it would have cost him time and money to indulge himself in the enterprise of paying for and processing bookplates. Nevertheless it is our opinion, as well as James scholar Eugene Taylor's, that if he had made a bookplate it would have consisted simply of the way he economically signed much of his correspondence: W. J. We have left the space for his bookplate empty in hopes that you will fill in your choice of what you think James would have chosen if he had made a bookplate himself.


**Sigmund Freud** (1856–1939)

Freud did not make a bookplate to identify ownership in any of his books. However, if he had made one, this would more than likely have reflected his preferences. What we are displaying as a possible bookplate was created by the Freud museum and is sold there as a bookmark. It reproduces the embossed image on the famous bronze medallion created by Karl Maria Schwerdtner, presented to Freud on his 50th birthday. The medallion had the usual face portrait for such an item. His side portrait is in bas relief and on the reverse, a Greek design of Oedipus encountering the sphinx. Around it is a line from Sophocles' Oedipus Tyrannus that reads "who divined the famed riddle and was a man most mighty." This certainly is a reflection of what Freud projected of himself to his colleagues: the image of a mighty man with a mighty intellectual sword who wished to unveil the hidden knowledge of the sphinx. That was what he attempted to achieve in his interpretations of dreams and his theory of the integrative function of the mind. It also reminds one of the quote from Virgil placed prominently on the title page of *The Interpretation of Deams*; a free translation of which reads "if the gods do not recognize me, I'll raise all hell" – the gods being the Viennese medical establishment with which Freud had tussled since his 1886 paper on male hysteria was not well received.[11] We interpret the quote to mean that if the medical gods did not accept Freud's theory of dream interpretation, then he intended to give them hell until they saw the light, a fair description of what he attempted to do during the course of his career.

[11] His very choice of title was a kind of slap in the face to the medical gods, for *Traumdeutungen* was what popular books of dream interpretation by fortune tellers were called (Ellenberger, *Discovery of the Unconscious*, p. 452). The actual quote from Virgil reads "Flectere si nequeo Superos, Acheronta movebo," which Ellenberger translates as "If Heaven I cannot bend, then Hell I will arouse" (*Discovery* p. 452).


**A.A. Brill** (1874–1948)

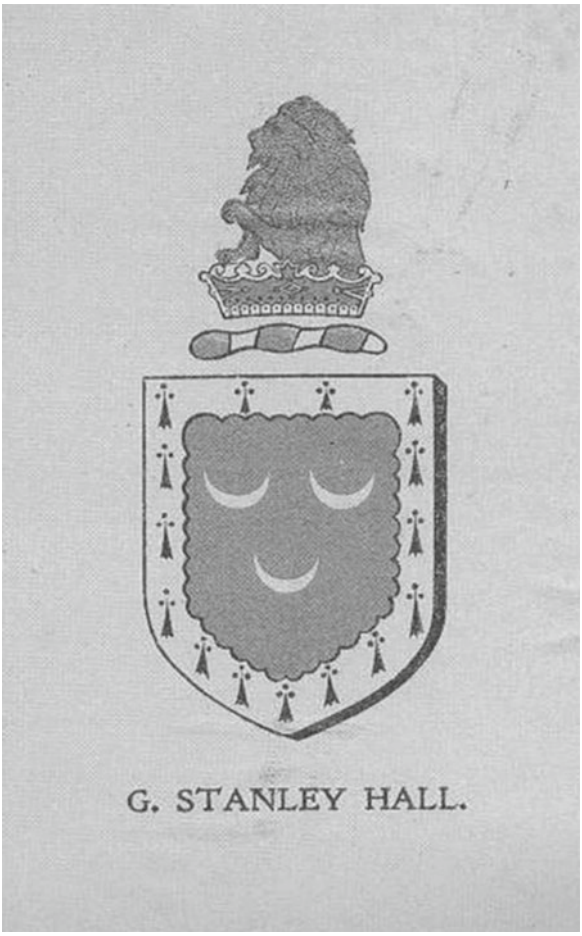
Abraham Arden (1874–1928) was born in the eastern Austro-Hungarian Empire of Jewish descent and sailed alone to the USA in 1889 at the age of 15 years, arriving with no money and not knowing a word of English. His is a kind of Horatio Alger success story: he completed his elementary and high school education in 3 years and eventually secured his medical degree from Columbia in 1903, working at many jobs to support himself and pay his tuition. In 1907, Brill studied the new psychodynamic techniques at the Burghölzli mental hospital in Zürich, headed by Eugen Bleuler, who appointed him third assistant after Karl Abraham's departure. In 1908, he met Freud for the first time and subsequently dedicated himself to advancing the cause of psychoanalysis in the USA. Brill returned to the USA in 1908, where he began private practice as the first – and for quite some time the only – American psychoanalyst. In 1911, Brill founded the New York Psychoanalytic Society and was actively involved several months later in the formation of the American Psychoanalytic Association, for both of which groups he served as president several times. During his visit with Freud in 1908, Brill secured Freud's

permission to translate his writings into English. In effect Freud anointed Brill, the first American convert to psychoanalysis, to launch and lead the psychoanalytic movement in America. In 1913, Brill's translation of the third edition of Freud's *The Interpretation of Dreams* appeared, published in both London and New York.

The bookplate shown here is in the Rieber collection and is on the front pastedown of Havelock Ellis's *The Problem of Race-Regeneration*, published in New York in 1911. The Brill bookplate and the Freud medallion (as well as its representation in the bookmark created and sold by the Sigmund Freud Museum in London) have a complementary relationship to one another as well as some visual similarity. Each has two figures, one male and one female, and both are done in elaborate Jugendstil or art nouveau style. At the top of Brill's bookplate, we see the Latin tag "SAPIENS DOMINABITUR ASTRIS" ("the wise man will rule the stars," that is, will gain control over his destiny or fate). This Latin phrase turns out to have a rich and interesting history. In the late middle ages, it was incorrectly ascribed to Ptolemy's *Almagest*, an attribution repeated into modern times, and played an important role in the formation of the Hermetic Order of the Golden Dawn in the late nineteenth century, the most famous members of which were W. B. Yeats, Aleister Crowley, and A. E. Waite. The Order had ten degrees of initiation based on the Tree of Life of the Kabbalah, plus an 11th degree for neophytes. William Westcott, the British Rosicrucian who founded the Hermetic Order, claimed to have been given permission to do so by Anna Sprengel, the almost certainly mythical Rosicrucian adept and alleged member of the German occult society Die Goldene Dämmerung. Anna Sprengel's nom de plume was alleged to be "Sapiens Dominabitur Astris," or SDA. It is quite possible that Brill was aware of the Hermetic Order, since its goings-on created quite a stir around the turn of the nineteenth century. We are inclined to believe that it is at least as likely that he encountered the phrase in his wide reading, for it had been frequently cited as a maxim from about the thirteenth century on. Machiavelli referred to it in *The Prince* in 1513; Francis Bacon in Chapter 17 of *The Twoo Bookes of Francis Bacon: Of the Proficience and Advancement of Learning, Divine and Humane* (1605); and Walter Scott in *The Antiquary* (1816).

The icon on the bookplate depicts the Greek god Eros as a comely young male hovering over Psyche, the nubile female Greek goddess who represents the soul, especially as the seat of passion. Psyche – always closely associated with Eros in Greek mythology – is supine and unclothed above the loins. She appears to be asleep or in a trance state. Eros is pricking her breast above the heart with one of his arrows. Beside the woman is a Grecian urn with smoke or incense rising out of it. The blazing sun, emitting energetic rays of light in every direction, lies above Psyche and directly in front of the winged Eros figure holding the arrow and with his quiver of arrows slung over his left shoulder. Inside the light ray-emitting corona of the sun, "TRAUMDEUTUNG" ("dream interpretation") is printed around a circle. Our interpretation of the iconic representation on the bookplate might be as follows: a wise man will overcome his fate through the interpretation of dreams. The arrow held by the Eros figure hovering over the woman may symbolize the *prick* that awakens her out of her unconscious dissociated state, thus turning the unconscious into the conscious. The entire mise-en-scène suggests that Freud's *Traumdeutung*

sheds light on the psyche, both bringing into the light of day the doings of the sleeping/dreaming mind and making conscious the working of libido, the psychological energy derived from the sexual instinct. Furthermore, the scene itself functions as a dream, presenting in symbolic visual form the manifest content, the ideas underlying which can only be discovered through interpretation. The woman is depicted in such manner as clearly to call to mind the many visual representations of hysterical women in the later nineteenth century, notably the female patients of Charcot, with whom Freud studied in the mid-1880s. In our opinion, this bookplate might very well have been designed for and presented to Freud, demonstrating Brill's understanding of and allegiance to psychoanalysis.[12]




**G. Stanley Hall** (1844–1924)

[12] For a brief biography of Brill, see May E. Romm's "Abraham Arden Brill, 1874–1948: First American Translator of Freud" in Franz Alexander et al., *Psychoanalytic Pioneers*, pp. 210–223.

Granville Stanley Hall was one of the original founders of American psychology as we know it today. One might argue that Hall and William James were in competition with one another as the two most influential founders of the profession of psychology. While James had no bookplate, Hall designed the most flamboyant example of a bookplate by any famous psychologist that we know about. In Hall's bookplate, the lion is in gold and bright orange surrounds the half moons, with orange also on the crown beneath the lining. First we may ask, what do the crown and the lion sitting on it symbolize? Beneath the crown three crescent moons are embedded in the orange along with the shield – the standard sign of lineage in the hoary tradition of heraldry. The most obvious answer is that Hall, wittingly or not, wished to project himself as the king of psychology with the pomp and regalia of royalty. Perhaps one might say not only that the bookplate's image projects Hall's self-image as a king or leader image, but that it also goes even further and suggests the power and courage


**James Mark Baldwin** (1861–1934)

of fierce-fighting King Richard the lion hearted, who saved England from "alien" forces. As Saul Rosenzweig wrote in his 1992 book on Freud's 1909 trip to America, "it was to some extent Freud's overwhelming claims for psychoanalysis that made Hall a 'king-maker,' but Freud was not entirely subjective in his judgment of Hall. Hall too, had his complexities, among them an ambivalent identification with Sigmund Freud." That Hall remained ambivalent is made clear by his preface to the English translation of Freud's introductory lectures published in 1920, in which he devoted two of its seven paragraphs to Wundt and referred to "the frightful handicap of the *odium sexicum*."[13]

A contemporary and colleague of both G. Stanley Hall and William James, James Mark Baldwin was also one of the founders of psychology as a profession and a progenitor of the science of human development, particularly the psychological development of children. His work had a direct and acknowledged influence on Jean Piaget.[14] We see the influence of heraldry in his bookplate, which was a tradition still in vogue at the turn of the nineteenth century. The use of such imagery reflects his early training at Princeton where he was a student and later a professor. At the top and bottom left corners of the bookplate are the two universities that awarded him honorary degrees (Glasgow in 1901 and Oxford in 1900); at the right corners are the two universities where he taught before becoming Professor of Psychology and Philosophy at Johns Hopkins University in Baltimore in 1903. The absence of Johns Hopkins strongly suggests that the design of the bookplate dates from around 1902, after his honorary degrees were awarded but before his Hopkins appointment. On the contrary, what happened to him at Hopkins was certainly enough to make him not want to immortalize the memory. As Robert H. Wozniak wrote in his introduction to the *Selected Works of James Mark*, "In 1908, at the pinnacle of his career, Baldwin was arrested in a raid on a Baltimore bordello and forced to resign from Hopkins. The ensuing scandal led to his being ostracized from American psychology and to his eventual decision to become an expatriate."[15]

This busy bookplate has a number of symbols that likely reveal something about Baldwin's character. The woman emerging from a book, holding a laurel and a torch, might well signify the search for truth and scholarship. The four prominently visible books in the center of the bookplate provide both visual balance for and a literary analog to the four university shields. They clearly represent Baldwin's interest in the gamut of human knowledge from Homer and Job in antiquity to Lotze and Comte near his own time, and their central position suggests that Baldwin's life was centered on books and learning. At the top of the bookplate, we see his initials as an

[13] Saul Rosenzweig. *Freud, Jung and Hall the King-Maker: The Historic Expedition to America* (1909): (St. Louis,: Rana House, 1992). Sigmund Freud. A General Introduction to Psychoanalysis. NY: Boni and Liveright Publishers, [1920].

[14] Most notably his *Mental Development of the Child and* Race (NY/London: Macmillan and Co., 1895) and *Social and Ethical Interpretations in Mental Development* (NY: The Macmillan Company, 1897).

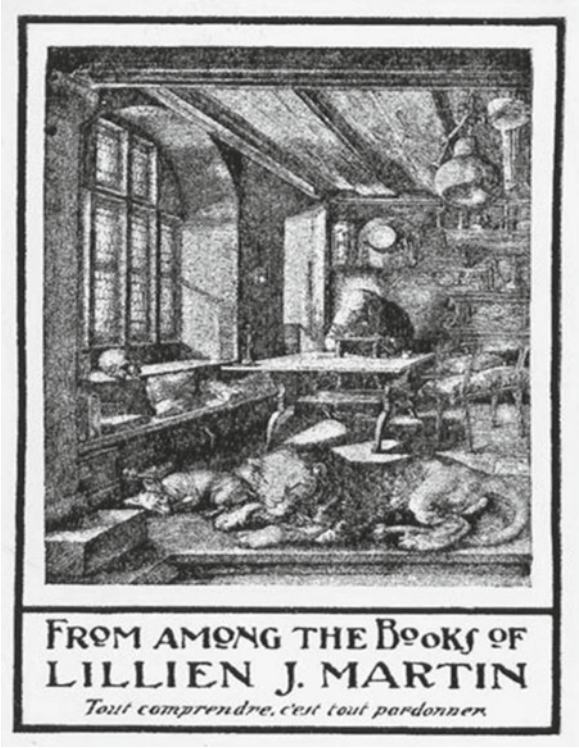
[15] Bristol: Thoemmes Press, 2001. 6 volumes.

elaborate image with the initials interlocked. Below the books is an image of a camera pointed at a brain, exactly balancing his initials at the top. The camera-brain image strongly suggests an empirical and experimental balance to the bookishness displayed in the center of the bookplate above the camera, as well as a rooting of psychological phenomena in the brain. It suggests as well an interest in photography. We can only speculate that he may have found some lineage to his ancestors symbolized by the squirrel and leaf emblems. The squirrel may have some relationship to the Legend of the Squirrel at Princeton University. Baldwin was closer to James than he was to Hall in both his ideas and his personal affiliation. He was a psychologist ahead of his time and a marginal man outside of the mainstream.


**Mary Whiton Calkins** (1863–1930)

Mary Calkins's bookplate depicts a path through nature. Beneath the drawing is the motto "Follow the courage of your convictions. Let your spirit lead you to this courage. Then you need not be afraid." This could be said to have been the motto of her life. Mary Calkins began the serious study of psychology with William James. She recalled how seeing his *Principles* hot off the press inspired her as a young student. She began her own laboratory work in 1890, under the guidance of Edmund Sanford. Calkins was an executive member of the American Psychological Association as early as 1905. She worked with Münsterberg during that period. She taught at Wellesley College and wrote an early textbook, *An Introduction to Psychology*, which was extensively used in American universities in the first two decades of the twentieth century.[16] Calkins's patience for promoting a personalistic psychology put her in a most interesting position during a crucial period in the field's history.

American psychology had a brief but significant flirtation with Wundt's ideas. The functionalist–structuralist controversy just after the turn of the nineteenth century opened the door to potentially powerful, but nonetheless sleeping, tigers: positivism




**Lillien Jane Martin** (1851–1943)

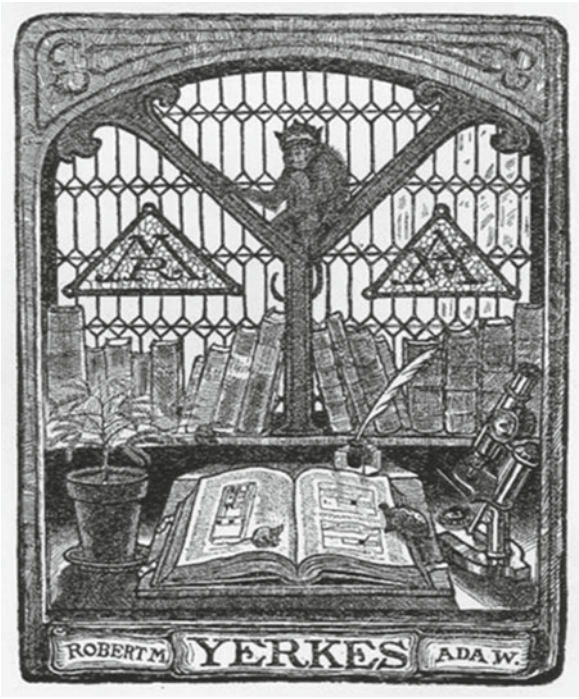
[16] New York: Macmillan, 1901, with at least six printings through 1916.

and behaviorism. A flicker of light in the form of a more dynamic, humanistic psychology, which Mary Calkins strenuously argued for, was quickly extinguished along with the remnants of Wundtian "structuralism." Calkins' bookplate is quiet and peaceful, depicting only a bucolic, tree-lined path, with no hint of the furious controversy in which she participated. One of the first important women in both American psychology and philosophy, Calkins presided over the APA in 1905 as the first female president and was in 1918 elected president of the American Philosophical Association. As one of the first female leaders in psychology, Mary Whiton Calkins had to have the courage of her convictions – because she was a woman, Harvard refused to grant her a doctorate, even though she had completed all the requirements. Her bookplate shows the world as a kinder, gentler place.

"To understand everything enables you to forgive" is the translation of Martin's motto. An extraordinary woman for her times, Martin studied in Germany from 1894 to 1898 with G. E. Müller (1890–1934) and was one of his most loyal American students. Upon her return from Germany, she joined James Rowland Angell (1869–1949) at the new Leland J. Stanford University, where he put her in charge of equipping and managing the laboratory. Her bookplate shows great diversity in symbolism. The icon that Martin chose for her bookplate comes from an important Albrecht Dürer engraving of St. Jerome, famous for his translation of the gospels into vulgate Latin. This icon was always depicted with a lion and a stone, apparently for the chastisement of the flesh. One can only speculate why Martin chose this engraving. It certainly reflects the fact that she spent a long time studying and working in German universities. A world traveler, she was a woman with many interests. In 1927, she published a travelog titled *Round the World with a Psychologist*.[17] She avidly promoted the idea that Americans should become more intellectually and emotionally international – like herself. Her humanitarian interests, which were quite compatible with her motto, included activities such as establishing clinics for the elderly and for children with various kinds of disabilities. Her bookplate reflects the many powerful sentiments and activities in her life.

Yerkes was a student at Harvard of William James and of most of Harvard's distinguished faculty at the turn of the nineteenth century. Though he considered becoming a physician, he decided instead to take a degree in philosophy and psychology. In a way, he came full circle in 1929 when he had his title at Yale changed from Professor of Psychology to Professor of Psychobiology, with his appointment switched from psychology to the Department of Physiology in the Yale School of Medicine. We see in his bookplate the academic who taught at both Harvard and Yale within stained glass windows as well as all the ingredients that reflect his work as a professor in the university: the texts, the microscope, and, sitting at the crux of the "Y" near the top of the stained glass window, a chimpanzee. His natural history research with great apes is reflected in the image that integrates his work with animals and his work at the university. His prolific reputation as an author in addition to being a scholar is reflected by the open book that is being written in. His is the only joint bookplate in our list, with Robert's name in the lower left corner and his

[17] San Francisco: J. W. Stacey, 1927.

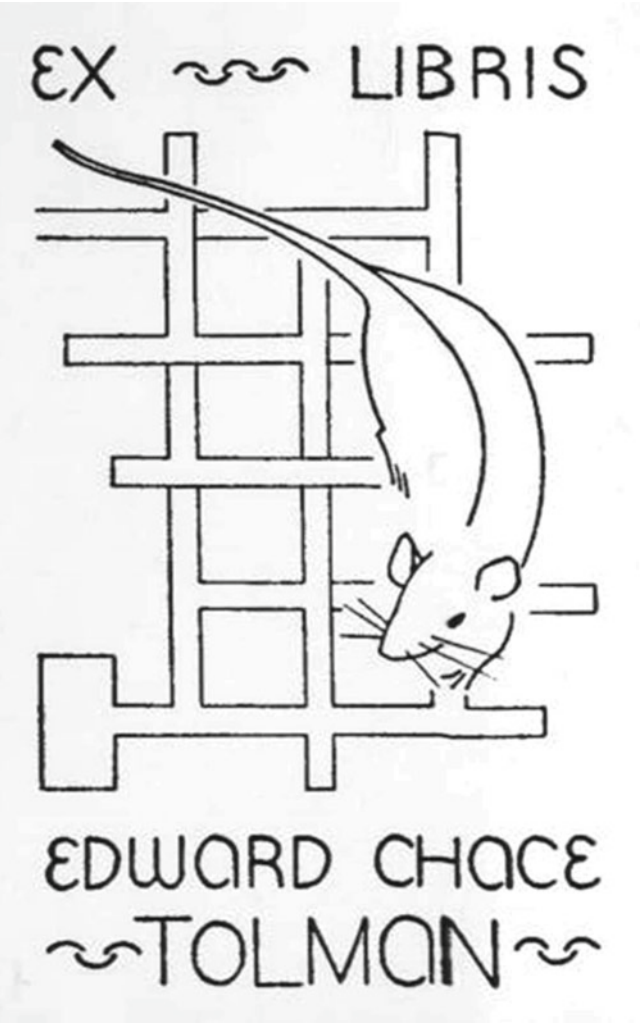



**Robert M. Yerkes** (1876–1956)

wife Ada's in the lower right corner. Ada, who held a Ph.D. in biology, coauthored his 1929 *The Great Apes*, perhaps his most broadly influential book. The turtle on the right side of the open book refers to Yerkes' earliest work in comparative psychology, which dealt with turtles, frogs, and amphibians. The mouse on the left side of the open book alludes to his first published book, *The Dancing Frog*.[18]

Edward Chace Tolman was born in Massachusetts in 1886 and attended MIT. He wanted to become an engineer. After graduation, he attended Harvard to work in philosophy and psychology. He studied psychology rather than following in the footsteps of his brother and going into physics and chemistry. Without much influence from his mother, who was from Quaker origins, he became a graduate student at Harvard in 1911, where his course with the Jamesian Ralph Barton Perry swayed him from philosophy to psychology. He attended Yerkes' classes in comparative psychology at Harvard, where Watson's 1914 *Behavior: An Introduction to Comparative Psychology* was the text used. At Herbert S. Langfeld's suggestion, he went to Germany after a year of graduate work at Harvard. There he studied with

[18] Yerkes's second published paper was "The Instincts, Habits and Reactions of the Frog" *Psychological Monographs*, 1903, 4, No. 17, 579-638. Three of his next six papers were on frogs. *The Dancing Mouse: A Study in Animal Behavior* appeared in 1907 (NY: The Macmillan Company). *The Great Apes* was published by Yale University Press in 1929.

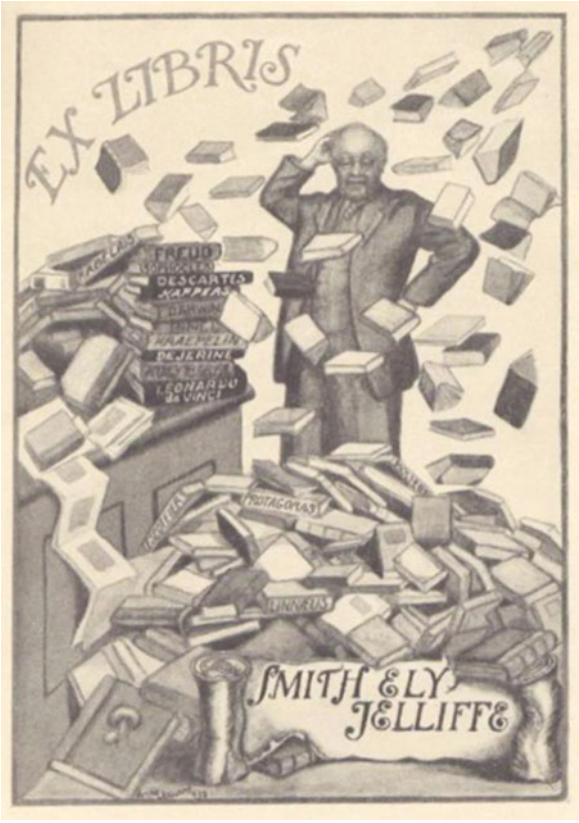



**Edward Tolman** (1886–1959)

Kurt Koffka in Berlin and Giessen. Though he hardly became a convert to Gestalt psychology, his work with Koffka did make him receptive to the influence of Gestalt psychology after World War I. Tolman received his degree in 1915 from Harvard and in 1918 got an instructorship at the University of Berkley in California. At Berkeley, he acquired some rats from the strain that had been developed in the anatomy department and began to launch learning experiments using the rats, which was standard practice at that time for most behaviorist-oriented experiments. However, not liking the Watsonian paradigm of single stimulus and response, he was ready to try to integrate the Gestalt method and theory that he had learned in Germany. He wanted very much to create his own version of the psychology of learning. This different approach to behaviorism culminated in 1932 in his famous

book *Purposive Behavior in Animals and Man*.[19] He was working toward what he defined as a Gestalt expectation in his theory and experiments, or S–F association, as he called it. Notions of behavior, space, and belief value matrix were added, taken from the work of Kurt Lewin, influence that Tolman readily acknowledged. We can only speculate that the bookplate was made before he wrote his purposive behavior book. It reflects his early interest in doing experiments with animals like the rat on the bookplate. However, the rat on his bookplate seems to be superimposed on the maze, suggesting that he was going beyond the standard view. The bookplate is also typographically interesting , being an avant-garde sans serif with highly irregular kerning and with the letters with curves having highly accentuated rounding with large open spaces, recreating in the words some of the visual effect of the maze. The bookplate itself looks very much toward the future rather than the past.

In this bookplate, a middle-aged Jelliffe is standing scratching his head, as if to say, "what in the hell is going on here." Stacked on the desk are ten books with visible spine titles. These proceed upward from Leonardo da Vinci through Dejerine,



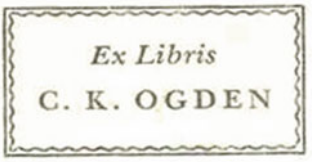

**Smith Ely Jelliffe** (1866–1945)

[19] NY/London: The Century Co., [1932]. An early volume in the influential Century Psychology Series, edited by Richard M. Elliott.

Kraepelin, Binet, Darwin, Ariëns Kappers, Descartes, Sophocles, and ends with Freud, but with ribald Rabelais tilting off the top edge of the Freud, presumably almost a jocular allusion to Freudian preoccupation with sex. All these authors strongly influenced Jelliffe. They are all sitting firmly on the desk, whereas others are piled helter-skelter on the floor or desk, or are flying upward into the air. On the floor, at the very bottom of this very busy bookplate is a large book, the cover of which depicts a mushroom. This directly represents Jelliffe's intellectual beginnings in botany and pharmacology – his earliest papers and his first two books all deal with botany and pharmacy – and thus is deservedly the first book at the beginning of Jelliffe's intellectual career, while Freud is deservedly the top book, for by 1913 Jelliffe, along with his lifelong friend and colleague, William Alanson White, had become a confirmed Freudian. In that year, Jelliffe and White founded the first American psychoanalytic journal, *The Psychoanalytic Review*, though they fell out of favor with Freud for continuing to publish dissidents like Jung and Adler after they had already been banished from the movement. In 1899, Jelliffe had become associate editor of the important *Journal of Nervous and Mental Disease*, which he took over completely in 1902 as owner and editor. In 1907, he founded with White *The Nervous and Mental Disease Monograph Series*, which published the first English translations of a host of important psychoanalytic texts, including Freud, Jung, Rank, and Adler. He and White edited in 1913 one of the most important period American neuropsychiatric textbooks, *The Modern Treatment of Nervous and Mental Diseases*, part III of which contained the first extensive discussion of Freudian notions in an American textbook. This turned into Jelliffe and White's widely used *1915 Diseases of the Nervous System*, which saw its sixth revised edition in 1933 and which helped to spread Freudian notions widely through American psychiatry and neuropsychiatry. Jelliffe is widely regarded as the father of psychosomatics in America. He published two pioneering studies of encephalitis (1927 and 1932), while his 1918 *The Technique of Psychoanalysis* was the first book published on analytic technique in any language. In 1911, Richard Badger published three papers, previously published in journals, by Adolf Meyer, August Hoch, and Jelliffe, *Dementia Praecox: a Monograph*. This was the first book on schizophrenia authored by Americans.[20]

[20] Jelliffe's first two books were *Essentials of Vegetable Pharmacognosy*, coauthored with Henry H[urd] Rusby (1855–1940) and *Outlines of Plant Histology: Pharmaceutical Era*, both published in 1895 in NY by D. C. Haynes & Co. A second, much enlarged edition of the first title appeared in 1899 *as Morphology and Histology of Plants …*, published by the two authors. William Alanson White (1870–1937) & Smith Ely Jelliffe. *The Modern Treatment of Nervous and Mental Diseases*. Philadelphia/NY: Lea & Febiger, [1913]. 2 vols. Jelliffe & White. *Diseases of the Nervous System: A Text-Book of Neurology and Psychiatry*. Philadelphia/NY: Lea & Febiger, 1915, with a sixth and last revised edition issued in 1933. Adolf Meyer (1860–1950, Jellife, & August Hoch (1868–1919). *Dementia Praecox: A Monograph*. Boston: Richard G. Badger, The Gorham Press, 1911. Two brief accounts of Jelliffe's life and career are Nolan D. C. Lewis's "Smith Ely Jelliffe 1866–1945: Psychosomatic Medicine in America" in Alexander et al., *Psychoanalytic Pioneers*, p. 224–233; and the online article on Jelliffe in Wikipedia (en.wikipedia.org/wiki/Jelliffe). The best account of his life is Burnham's in John C. Burnham Jelliffe: American Psychoanalyst and Physician & His Correspondence with Sigmund Freud and C. G. Jung, edited by William McGuire, University of Chicago Press, 1983. John E. Saur's bibliography in the latter book, pp. 291–309, is the best bibliography of Jelliffe's many publications.

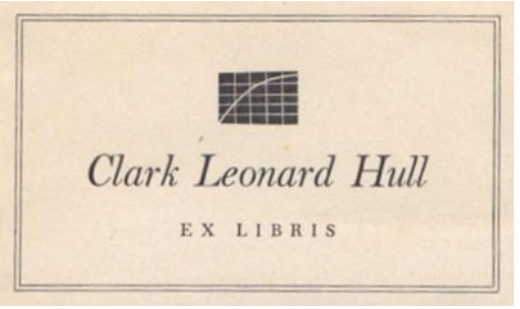
But, from our peculiar bookish perspective, we find Jelliffe interesting for quite another reason. We believe that Jelliffe was the first self-identified, large-scale American book collector in psychology, psychiatry, psychoanalysis, and neurology; that is, the first American who considered collecting in the fields that are part of his identity. He amassed an enormous collection of many thousands of volumes plus over a hundred runs of periodicals in about 20,000 physical volumes, and more than 20,000 offprints, with most of the latter bound topically into sequences of volumes with typed tables of contents for each bound volume. In 1941 or 1942, he sold the bulk of his collection to the Institute for Living in Hartford, Connecticut, for the sum of $20,000, retaining several thousand books for his own use. These were inherited by Nolan D. C. Lewis, who succeeded Jelliffe as editor of *The Journal of Nervous and Mental Disease*, as well as of the journal's monograph series. Though Jelliffe probably acquired most of his journals by trading his own journals with other publishers, and many of his books as review copies sent to the various journals he owned, it is certain that he also actively acquired retrospective antiquarian books, since he had in his collection a number of books published before 1880, though few before 1800. In the light of what we have just written, Jelliffe's bookplate makes a great deal of sense: it is full of books because Jelliffe's life was full of books. Of all the bookplates we present, Jelliffe's may most simply and accurately portray its designer's character.




**Charles Kay Ogden** (1889–1957)

When one looks at this simple, almost self-effacing bookplate, which in its actual size is about as big as an average postage stamp, one might infer, especially in contrast to the other bookplates we have discussed, that Ogden had a small or deflated image of himself. However, one must be very careful, as the case of Ogden will demonstrate, about making such assumptions. When we examine what little information we have, since no good biography has been written about Ogden, we will discover matters far more subtle and complicated. Many years ago when I (i.e., Rieber) was studying at the University College of the University of London in England, I was able to get some insight into Ogden's character by discussions with the librarian at University College, who had known Ogden personally. Ogden had one of the most fabulous collections of books similar to my own, but far richer and extensive both in quality and quantity than I ever could have imagined. The only other comparable collection would be that of Richard Hunter and Ida McAlpine (now at Cambridge University), which is still being cataloged, as is Ogden's at University College. The more I thought about Ogden's behavior as a book collector,

the more insight I gained into his bookplate. The following two anecdotes should shed some light on the situation: When he bought a book at auction and picked it up to take home afterward, he directed the cab driver to take a round about route home instead of the direct route to Gordon Street across from the university. He obviously was paranoid and did not want anyone to follow him. The other anecdote discusses how when anyone knocked at his door or rang his bell and he was not expecting a visitor he might greet them in an eighteenth century macabre secret-society mask that would shock or scare them out of their wits. Further evidence of his obsession with symbolic secretiveness can be found in the way he named his journal Psyche after himself, but in a way that nobody without esoteric knowledge could possibly decipher. The librarian told me that Ogden used the French pronunciation of the name of the journal as a reflection of his own identity as both editor and most frequent author. In French, "psyche" sounds very close to the English "C. K." He also told me that Ogden's friends frequently referred to him familiarly as "C. K." Perhaps then we can see why Ogden created a minimalist bookplate, as small as possible with as little information as necessary, hiding in the very act of revealing ownership.




**Clark Leonard Hull** (1884–1952)

Hull was born on a farm near Akron, New York, but migrated to Michigan when he was very young. At the age of 24 years, he acquired poliomyelitis, which left him with one leg paralyzed. He was unable to walk without crutches. With the assistance of Professor W. B. Pillsbury, he applied to Professor Joseph Jastrow at the University of Wisconsin, where he was finally given a graduate fellowship in psychology. After publishing in 1928 a book on aptitude testing, which Louis Terman had recommended to his publisher, Hull eventually gained a position at Yale University. Though influenced by the behaviorism of Watson, he developed a different approach to learning while he was at Yale. Some of his work at Yale were carried out in conjunction with the Institute of Human Relations. Two of his more successful students at Yale were Kenneth W. Spence and Neal Miller. The book in which he developed his most original approach to behaviorism was his 1943 *Principles of Behavior*.[21]

[21] *Principles of Behavior: An Introduction to Behavior Theory*. NY/London: D. Appleton-Century Company Incorporated, [1943]. Issued in the Century Psychology Series.

This famous book made it quite clear that Hull's work as a scientist was an attempt to construct a mathematically and scientifically based model of the theory of human behavior. His theoretical approach was directed toward the prediction of how individuals learn and behave in various experimental situations. The ascending curve that he chose to depict his identity might suggest his commitment to the principle "if you can't measure it, it may not exist." In Hull's bookplate, we see no book-filled image as with Jelliffe, no experimental rat maze as with Tolman, but only a mathematical representation via the image of a graph. Though we do not necessarily have a truly representative sample, still one might tentatively conclude that the design of bookplates for those in psychological and closely related fields moved from an ornate, image-filled, often heraldic-influenced, and rococo style early in the twentieth century to the much simpler, straightforward, and no-nonsense style of Tolman, Ogden, and Hull. In a way that is what happened to psychology, too, as it moved into the mid-twentieth century.


**Alexander Melville Bell** (1819–1905)

Bell, was born at Edinburgh, Scotland, on the 1st of March 1819. His son was Alexander Graham Bell, the inventor of the telephone. He was an authority on phonetics and defective speech. From 1843 to 1865, he lectured on elocution at the University of Edinburgh, and from 1865 to 1870 at the University of London. In 1868, and again in 1870 and 1871, he lectured in the Lowell Institute course in Boston. In 1870, he became a lecturer on philology at Queens College, Kingston,

**Fig. 4.1**

Ontario, and in 1881 he removed to Washington, D.C., where he devoted himself to the education of deaf mutes by the visible speech method of orthoepy, in which the alphabetical characters of his own invention were graphic diagrams of positions and motions of the organs of speech. He held high rank as an authority on physiological phonetics and was the author of numerous works on orthoepy, elocution, and education, including Visible Speech: The Science of Universal Alphabetics.[22] Bell was one of the earliest speech pathologists during the later part of the nineteenth century. The bookplate that he chose for his library depicts a hand with a sword at the very top, symbolizing his crusade, to help individual suffering from speech and hearing defects. The three images in the center, key, lips, and book, signify his lifelong devotion to therapy for people suffering from communication disorders. The plate graphically symbolizes his mission, which may be stated as follows: the key is to unlock the capacity for speech through reading another person's lips. It is interesting to compare this with the image below, which Berkeley constructed and included as a vignette in the last edition of his *Minute Philosopher*. Berkeley's theory also emphasized the mind's sensory processes. As one can see, in the vignette all five senses are represented: lips, eye, nose, ear, and hand. One wonders whether Bell was influenced by Berkeley in this respect (Fig. 4.1).

[22] London: Simpkin, Marshall and Company, 1867, see item #39.

# Appendix I: Books from Freud's Library on Ancient Egypt

300 Boetticher. Adolf: *Olympia, das Fest und seine Stätte. Nach den Berichten der Alten und den Ergebnissm der deutschen Ausgrabungen*.
2. durchges. erw. Aufl. Berlin: Julius Springer 1886. XII, 420 p., ill.
(German)

Bookplate: Ex libris. Siegmund Freud, [now missing; shown by characteristic glue marks verso front board.]

Trosman no. 625.
Dann Cat. LDFRD 346

550 Curtiss, Samuel Ives: *Ursemittische Religion im Volksleben des heuitgen Orients. Forschungen und Funde aus Syrien und Palästina*. Pref. *Wolf Wilheln Graf Baudisin.*
Leipzig: J. C. Hinrichs'sche Buchhandlung 1903. xxx, 378 p., ill.
(German)

Trosman no. 158.
Dana Cat. LDFRD 1061

745 Evans, Arthur: *The palace of Minos. A comparative account of the successive stages of the early Cretan civilization as illustrated by the discoveries at Knossos.*
London: Macmillan and Co. 1921–1916. 4 v. in 6, and Index: xxiv, 721 p.; xiv, 844 p.; xxiv, 525 p.; xxv, 1018 p.; vi, 221 (Index), ill.
(English)
P: Illustration (Plate III)
P: Illustration (Plate VII)

Vol. 2 gift from Ruth Mack Brunswisk to Freud in May 1929. cf. Freud's letter to Ruth Mack Brunswick, 15th. May 1929.
Bookseller's label: Brentano's, New York.
Trosman no. 579.
Dann Cat. LDFRD 331–337

1458 Friedrich, Johannes: *Ras Schamra. Ein Überblick über Funds und Forschungen*. Leipzig: J. C. Hinrichs'sche Buchhandlung 1933. 38 p., ill.
(*Der alte Orient*, 1933, Bd. 33, Heft 1–2)
(German)

(With 8 plates)
Trosman no. 646.
Dana Cat. LDFRD 774

1608 *A guide to the Babylonian and Assyrian antiquities*. Pref. *E. A. Wallis Budge.*
London: British Museum 1900. xv, 203 p., ill.
(English)

Trosman no. 587.
Dana Cat. LDFRD 45

1609 *A guide to the first and second Egyptian rooms* […]
2nd ed. London: British Museum. Printed by order of the Trustees 1904. viii, 156 p., ill.
(English)

Trosman no. 588.
Dana Cat LDFRD 810

1610 *A guide to the third and fourth Egyptian rooms* […]
London: British Museum. Printed by order of the Trustees 1904. xi. 304 p., ill.
(English)

Trosman no. 589.
Dann Cat LDFRD 811

1810 Hülsen, Ch[ristian]: *Das Forum romanum. Seine Geschichie und seine Denkmäler*.
Rome: Loescher & Co. (Bretschneider & Regenberg) 1904. VTL 219 p., ill.
(German)

(With *3* plans)
Trosman no. 583.
Dann Cat. LDFRD 558

1812 Huelsen, Ch[ristian]: *I piu recenti scavi nel foro romano*. (Appendice all' opera *Il foro romano*, 1905).
Rome: Ermanno Loescher & Co. (W. Regenberg) 1910. 39 p., ill.
(Italian)
Dana Cat. LDFRD 94

1985 Kauleu, Frauz: *Assyrien und Babylonien nach den neuesten Entdeckungen*.
5. Aufl. Freiburg im Breisgau: Herder'sche Verlagshandlung 1899. 317 p., ill.
(*Illustrierte Bibliothek der Länder- und Völkerkunde*)
(German)
Trosman no. 657.
Dana Cat LDFRD 127

2258 Löwy, Emanuel: Typenwanderung I.
Offprint from: *Jahreshefte des Österreichischen archäologischen Institutes*, 1909, 12:243–304.
(German)
Signature on front cover: Freud
Dana Cat. LDFRD 75

2259 Löwy, Emanuel: Typenwanderung II.
Offprint from: *Jahreshefte des Österreichichen archäologischen Institutes*, 1911, 14:1–34.
(German)
Dedication on front cover: Mit herzlichsten Grüßen | d. Vf.
Dana Cat. LDFRD 76

2372 Masner, Karl (ed.): *Festschrift für Otto Benndorf zu seinem 60. Geburtstage gewidmet von Schülern, Freunden und Fachgenossen.*
Vienna: Alfred Hölder 1898. 320 p., ill.
(German)
Trosman no. 644.
Dann Cat. LDFRD 488

2378 Mau, August: *Pompeji in Leben und Kunst*.
Leipzig: W. Engelmann 1900. XIX: 506 p., ill.
(German)
Trosman no. 592.
Dann Cat. LDFRD 551

2687 Overbeck, Johannes: *Pompeji in seinen Gebäuden, Alterthümern und Kunstwerken dargestellt.* Ed. *August Mau.*
4. durchgearb. verm. Aufl. Leipzig: Wilhelm Engelmann 1SS4. XVI, 676 p., ill. (German)
Trosman no. 595.
Dana Cat. LDFRD 545

2977 Richter, Otto: *Topographie der Stadt Rom.*
2. verm. verb. Aufl. Munich: C. H. Beck'sche Verlagsbuchhandlung. Oskar Beck 1901. VI, 411 p., ill.
(*Handbuch der klassischen Altertums-Wissenschaft* […], 3, Abt. 3, Hälfte 2, ed. I. vou Müller)
(German)
(With 2 plans)
Dann Cat. LDFRD 584

2375 Maspero, G[aston]: *Ruines et paysages d'Egypte*.
Paris: Librairie Orientale & Americaine E. Guilmoto ca.l910. VII, 326 p.
(French)
Trosman no. 591
Dann Cat. LDFRD 786

3653 Yahuda, A[braham] S[halom]: *The accuracy of the Bible. The stories of Joseph, the Exodus and Genesis confirmed and illustrated by Egyptian monuments and language*.
London: William Heinemann 1934. xxxvii, 226 p., ill.
(English)
Trosman no. 205.
Dana Cat. LDFRD 1028

2375 Maspero, G[aston]: *Ruines et paysages d'Égypte*.
Paris: Librairie Orientale & Américaine E. Guilmoto ca.1910. VII. 326 p.
(French)
Trosman no. 591.
Dana Cat. LDFRD 786

441 Capart, Jean: *Abydos. Le temple de Séti ler. Étude générale*.
Brussels: Rossignol & Van den Bril 1912. 39 (42) p., ill.
(French)
(With 50 plates and 1 loose plan)
Trosman no. 574.
Dann Cat. LDFRD 477

454 Carter, Howard; Mace, A[rthur] C[ruttenden]: *The tomb of Tut-Ankh-Amen. Discovered by the late Earl of Carnarvon and Howard Carter*.
Londou, New York, Toronto, Melbourne: Cassell and Company 1923–1933.
3 v.: xxiii, 231 p.; xxxiv, 277 p., xvi, 247 (248) p., ill.
(English)
P: Cover (Vol. 1)
P: Illustration (Plate XLIU)
Vol. 1 and 2 gift from Joan Riviere to Freud in Dec. 1923, cf. Freud's letters to Joan Riviere, 8th Dec. 1923 and 1st Apr. 1927. See Hughes. Athol: Letters from Sigmund Freud to Joan Riviere (1921–1939). In: Internat. Rev. Psycho-Anal. 1992, 19: 265–284.
Trosman no. 575.
Dana Cat LDFRD 757–759

2943 Reinisch, S[imon]: *Die aegyptischen Denkmaeler in Miramar*.
Vienna: Wilhelm Braumüller 1865. XIL 320 p., ill.
(German)

(With 43 plates)
Marginal marking p. 5.
Trosman no. 597.
Dana Cat. LDFRD 792

399 Budge, E[rnest] A[lfred] Wallis: *An Egyptian reading book for beginners. Being a series of historical, funereal, moral, religious and mythological texts primed in hieroglyphic characters together with a transliteration and a complete vocabulary*. London: Kegan Paul, Trench, Trübner & Co. 1896. LTV. 592 (593) p. (English)
P: Title page
P: Hieroglyphs (The tale of the two brothers)

Translations section uncut.
Bookplate: Ex libris, Siegmund Freud
Underlinings in »Vocabulary« section, *passim*.
Trosman no. 239.
Dana Cat. LDFRD767

90 Anthes, Rudolf: *Labensregeln imd Lebensweisheit der alten Ägypter.*
Leipzig: J. C. Hinrichs'sche Buchhandlung 1933. 40 p.
(*Der alte Orient,* 1933, Bd. 32, Heft 2)
(German)

Uncut.
Trosman no. 620.
Dann Cat. LDFRD 775

398 Budge, E[rnest] A[lfred] Wallis: *Egyptian magic*.
(2nd impression) Loudon: Kegan Paul, Trench. Trübner & Co. 1901. xv, 234 p., ill.
(*Books on Egypt and Chaldaea*. vol. 2)
(English)

Trosman no. 153. [Trosman and Simmons (1973) give the 1899 edition.]
Dann Cat. LDFRD 827

402 Budge. E[rnest] A[lfred] Wallis: *Osiris and the Egyptian resurrection*. Illustrated after drawings from Egyptian papyri and monuments.
London; New York: Philip Lee Warner; G. P. Putnam's Sons 1911. 2 v.: xxix, 404 p.; viii, 440 p., ill.
(English)
P: Illustration (p. 33)
P: Cover
P: Title page

Trosman no. 154.
Dam Cat. LDFRD 783–784

316 *The book of the dead*. An English translation of the chapters, hymns of the Theban Recension. vols. 1, 2 and 3. Ed. and tr. *E[mest] A[lfred] Wallis Budge*. London: Kegan Paul, Trench. Trübner & Co. 1901. 3 v.: xcvi, 222 p.; viii. p. 225–526;

397 Budge, E [rnest] A[lfred] Wallis: *Egyptian ideas of the future life.*
2nd ed. London: Kegan Paul, Trench Trübner & Co. 1900. xii. 198 p., ill.
(*Books on Egypt and Chaldaea*, vol. 1)
(English)

Trosman no. 152. [Trosman and Simmons (1973) give the 1899 edition.]
Dann Cat. LDFRD 826

732 Erman, Adolf: *Die ägyptische Religion*.
Berlin: Georg Reimer 1905. IV, 261 p., ill.
(*Handbücher der Königlichen Museen zu Berlin*. Bd. 9)
(German)

Marginal markings, p. 3, 27, 23, 31, 66, 67, 68, 69, 70, 154, 176, 181, 182, 223.
Trosman no. 161.
Dann Cat. LDFRD 790

2587 Myer, Isaac: *Scarabs. The history, manufacture and religious symbolism of the scarabaeus in ancient Egypt, Phoenicia, Sardinia, Etruria, [etc.]*
London: D. Nutt 1894. xxvii, 177 p.
(English)

Trosman no. 183. [Trosman and Simmons (1973) give the edition as Leipzig: O. Harrassowitz, 1894.]
Dann Cat. LDFRD 791

2714 Petrie, W[illiam] M[atthew] Flinders: *Amulets. Illustrated by the Egyptian collection in the University College, London*.
London: Constable & Company 1914. X, 58 p., LIV., ill.
(English)
P: Illustration (Plate XXIV)
P: Illustration (Place XLIX)
P: Illustration (Plans of Amulets on Mummies)

(With 54 plates)
Trosman no. 596.
Dann Cat. LDFRD 472

348 Breasted. James Henry: *The dawn of conscience*.
New York, London: Charles Scribner's Sons 1934. xxvi, 431 p., ill.
(English)

Marginal markings and underlininss. p. 273, 274. 278, 280, 281 and 281fn 1 underlining [bibliographical reference]. 286, 289, 291, 292, 296, 298, 301, 303, 305, 306, 309, 310, 332, 334, 335; underlinings 348, 350, 351, 352 (and question mark), 353, 354 (and question mark), 359. 360, 361, 363fn., 364, 368, 369, 370, 371, 379, 383, 384, 385.
Trosman no. 2.
Dann Cat. LDFRD 780

349 Breasted, James Henry: *A history of Egypt from the earliest times to the Persian conquest.*
London: Hodder & Stoughton 1906. xxix, 634 p., ill.
(English)
P: Cover

Marginal markings and underlinings, p. 14, 356, 359, 360, 361, 363, 367, 369, 370, 371, 374fn.1, 376, 377, 381 underlining, 390, 391 underlining, 392, 393, 394, 395, 472.
Trosman no. 627.
Dann Cat. LDFRD 781

3654 Yahuda. A[braham] S[halom]: *The language of the Pentateuch in its relation to Egyptian, vol. 1*. With a hieroglyphic appendix.
London: Oxford University Press (Humphrey Milford) 1933. xxxviii, 310 p. and appendix
(English)

(With a loose printed sheet of extracts from reviews of this volume)
Trosman no. 247.
Dann Cat. LDFRD 1069

378 Brugsch, Heinrich: *Die Aegyptologie. Abriss der Entzijferungen und Forschungen auf dem Gebiete der aegyptiscben Schrift, Sprache und Alterthumskunde*.
Nene billige Ausgabe. Leipzig: Albert Heitz 1897. VIII, 535 p.
(Geman)

Underlinings [mainly bibliographical references], p. 7, 30, 49, 72, 74, 88, 89, 128, 129, 131, 133, 134, 135, 136, 138, 141, 167, 168, 179, 186; and marginal markings, p. 13, 53, 55, 63, 64, 72, 177, 182, 199.
Trosman no. 629.
Dann Cat. LDFRD 782

90 Anthes, Rudolf: *Lebensregeln und Lebensweisheit der alten Ägypter*.
Leipzig: J. C. Hinrichs'sche Buchhandlung 1933. 40 p.
(*Der alte Orient*, 1933. Bd. 32, Heft 2)
(German)

Uncut.
Trosman no. 620.
Dann Cat. LDFRD 775

2522 Moret, A[lexandne]: *Le Nil et la civilisation égyptienne*. Pref. *Henri Berr*.
Rév. corr. éd. (16e mille) Paris: Albin Michel 1937. XVDL 573 p., ill.
(L'*évolution de l'humanité*, synthèse collective, section 1. no 7. ed. Henri Berr)
(French)

Cut pref. only.
(With 24 plates)
Trosman no. 671.
Dann Cat. LDFRD 763

401 Budge. E[rnest] A[lfred] Wallis: *A history of Egypt from the end of the neolithic period to the death of Cleopatra VII, B. C. 30*.
London: Kegan Paul. Trench. Trübner 1902. 8 v.: xxii, 222 p.; xvi, 207 p.; xvi, 219 p.; xvi, 241 p.; xvi, 219 p.; xxx, 230 p.; viii. 251 p.; xiv, 321 p., ill.
(*Books on Egypt and Chaldaea*, vols. 9–16)
(English)
Trosman no. 630.
Dann Cat. LDFRD 833–840

2436 Meyer, Eduard: *Aegypten zur Zeit der Pyramidenerbauer.. Vortrag, gehalten in der Deutschen Orient-Gesellschaft am 12. Januar 1908*.
Leipzig: J. C. Hinrichs'sche Buchhandlung 1903. 43 p., ill.
(*Sendschrifien der Deutschen Orient-Gesellschaft*, Nr. *5*)
(German)

2716 Petrie, W[illiam] M[atthew] Flinders; Mahaffy, J[ohn] P[entland]; Milne J. Grafton; Lane-Poole, Stanley: *A history of Egypt*.
4th rev. ed. London: Methuen & Co. 1899–1905. 6 v.: xxiii, 263 p.; xvi, 353 p.; xx, 406 p.; xiii, 261 p.; xii, 262 p.; xiv. 382 p., ill.
(English)

3334 Steindorff, G[eorg]: *Die Blütezeit des Pharaonenreichs.*
Bielefiehi Leipzig: Velhageo & Klasing 1900. 170 (171) p., ill.
(*Monographien zur Weltgeschichte*, ed. Ed. Heyck. Nr. 10)
(German)
Trosman no. 691.
Dann Cat. LDFRD 795

396 Budge, E[mest] A[lfred] Wallis: *Easy lessons in Egyptian hieroglyphics*. With sign list
(2nd impression) London: Kegan Paul, Trench, Trübner & Co. 1902. x. 246 p. (*Books on Egypt and Chaldaea*, vol. 3)
(English)

## References

Rutherford, A. (2003). *A history of psychology* (Vol. XI)

**Note*: Books are referenced where those books appear

# Chapter 5
# Is Freud a Determinist?

Let me try to provide some clarification concerning Freud's notion of determinism.

The "received view" is that Freud is a determinist, in the sense of a mechanistic, and even possibly a mechanical, view concerning the psychological events. It is held that he held that there is no free conduct on the part of the individual, and that the experience of freedom, according to Freud, is necessarily and always an illusion.

This received view is wrong. In order to clarify this, some points need to be made.

The standard notion of determinism, derived from Epicurus and Democritus and picked up by Gassendi and Hobbes, received its ultimate formulation by La Place. He conceived of a superhuman intelligence that could grasp both the position and the forces acting on it of every particle in the universe. For such a god-like being,

> …nothing would be uncertain and the future, as the past, would be present to its eyes. [Pierre Simon de LaPlace. *Philosophical Essay on Probabilities* tr. F. W. Truscott and F.L. Emory. London and New York, 1902, p. 4]

This view, when applied to human conduct, allows that there can be no freedom of choice. When Freud indicated certain unconscious factors determining human conduct, many saw a convergence between Freud's determinism and this determinism.

But this is not Freud's determinism. Rather for Freud, there is a normal range of voluntary prerogative as a characteristic of the human species, and that the diseased condition is a condition in which there is a loss of that normal prerogative in functioning.

In order to appreciate Freud's view on this, it is of value to identify two Aristotelian notions which Freud took for granted, as many did in his time.

First, Freud held to the characteristic Aristotelian notion of health and disease, normality and abnormality. This is that there is a fundamental form and function associated with each species. It is a deviation from that which constitutes abnormality. For example, the normal number of teeth is 32, albeit most adults do not have 32 teeth.

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Certainly, a statistical average is less than 32. In the Aristotelian sense, normality is understood in terms of the 32 as the norm, and not by the statistical average.

So Freud had a notion of normal volitional control over conduct, and sought to understand how it was that there are deviations from that. *Neurosis, which was his main interest, is exactly a condition in which the person loses normal volitional control*. Thus, Freud studied hysterical paralysis and hysterical blindness when he was Charcot in Paris. Hysterical paralysis is a condition in which the normal volitional power over the use of a limb is gone. Hysterical blindness is when the normal control that a person has over his visual functioning is gone. It is similar with obsessions, phobias, and compulsions, in which the person has lost normal volitional control over thoughts, fears, and actions, respectively.

Freud's major concern was to find the causes of the deviation from the norm, the causes of the losses of normal volitional control. Freud's studies are analogous to studies that one might make as to why human beings have less than 32 teeth.

In the same way as an investigator might assume that the deviation from 32 was not just due to chance and accident, so did Freud. Freud's deterministic rhetoric is characteristically to assert that certain events are not due to change and accident, rather than the affirmation of determinism in the La Placean sense.

Second, Freud is also an Aristotelian in another sense, which would separate him from the La Placean-type determinists. Aristotle posited the existence of four categories of causation. These are the efficient causes, the material causes, the formal causes, and the final causes. The essential feature of the determinist position is that it affirms all causations to be exhausted by material causes and antecedent efficient causes. It rejects formal and final causation.

Now what is interesting about Freud is that the causes that he identifies are precisely in the category of final causation. That is, Freud's determinism of the wish, the motive, and the intention is located in the unconscious.

Now it is true that Freud called himself a determinist. See Chapter XII of *The Psychopathology of Everyday Life*. But that has to be looked at carefully. What he says there clearly shows him to be thinking of determinism in the framework of Aristotelian normalcy, and in terms of Aristotelian final causality. He opens Chapter XII, which is entitled "Determinism, belief in change and superstition – some points of view" by saying the following:

> The general conclusion that emerges from the previous individual discussions may be stated in the following terms. *Certain shortcomings in our physical functioning…and certain seemingly unintentional performances prove, if psycho-analytic methods of investigation are applied to them, to have valid motives and to be determined by motives unknown to consciousness.* [Standard Edition, Psychopathology of Everyday Life, Volume VI, p. 239]

The fact is that Freud has already indicated that this is the psychopathology of everyday life in the title, which means that he is investigating the deviations from what is normally under volitional control. He states that explicitly when he indicates that he is only concerned with an action carried out erroneously when

> we…believe ourselves capable of carrying it out more correctly. [ibid.]

The situation is the same for all of Freud's work on neurosis. Freud does not have to say on every page that the fundamental problem which he is addressing is neurosis, that neurosis is defined as deviation from the normal volitional control, that his project is to identify unconscious final causes.

It is only by reading him with a narrow focus that we would come to take him as believing in the impossibility of volition that the La Placean determinism leads to. If Freud believed that, there would be no way of distinguishing neurosis from normality, and no aim for psychoanalytic therapy.

Restoration of that normal volitional control is precisely the aim of psychoanalysis. The loss of that volitional control is disease. Freud is not a determinist in the sense that he would deny the normal existence of voluntary control. He is rather the physician who takes on the task of finding a remedy when the person loses that normal volitional control.

As a psychologist who has been socialized in the culture of psychology, I should at least be sheepish about using the word "metaphysics," for the term commands little respect in the culture of psychology of which I speak.

Early in my career, I held a position at the University of Missouri, the place where American behaviorism was truly founded. Max Meyer, who founded the department there, had written his *The Psychology of the Other* One well before John Watson popularized the position.

Although Max Meyer was long gone when I arrived at the University of Missouri, his ghost still walked the halls. I was occasionally reminded by older colleagues that there used to be a sign over the door that read "NO METAPHYSICIANS OR DOGS ALLOWED."

The term has been used in the culture of psychologists as a pejorative, equivalent to words like "nonsense" or "garbage," or the word that we use for the excrement of male bovines.

Indeed, Skinner in a review that he wrote of Goldstein's classic in psychology, *The Organism*, a work which has recently been reissued by the MIT Press [Skinner…; Goldstein…], sought to dismiss the book saying that it was "metaphysical."

Let me put what I consider to be one of psychology's major metaphysical issues on the table.

The great metaphysical questions for psychologist of the last century are about mentation. Does mentation exist? If it exists, how is it possible that it might be true or right? What is its significance in connection with the social bonds among people? And if it exists, does it have any determinative power with respect to conduct? In this presentation, I will be concerned mostly with this last question.

Ironically, in spite of the scorn of the behaviorists for metaphysics, they were principally involved in raising the metaphysical question. And ironically, although they denounced the idea of mentation having any control over conduct, their major concern for psychology was that it provide for control over conduct.

Behaviorism comes in two forms: a strong and a weak form. In the strong form, the very existence of mentation is not denied. In the weak form, the existence of mentation is not denied, but possibility of the scientific study of mentation is denied.

In both the strong and the weak forms, the possibility of mentation having a determinative influence on conduct is denied. In the strong form, of course, mentation cannot drive conduct because it does not exist. In the weak form, mentation is regarded as an epiphenomenon, a secondary phenomenon, like a shadow, having no causal influence.

The metaphysical thesis of behaviorism, in both the strong and the weak forms, is that the driving factors of all events, conduct included, are in matter and its principles.

The alternative metaphysical thesis, which we will discuss, is that mentation and its principles also drive conduct.

I am aware that there are many psychologists who, in both research and application, freely allow that mentation is a factor driving conduct. At the same time, many of them would deny the proposition in this form that mentation can drive conduct. Some might argue that they accept the proposition only provisionally, until the science becomes more mature.

The phenomena of hypnosis make it especially difficult to accept the position that conduct is only the result of the action of matter and its principles, and that mentation is only an epiphenomenon.

Let me read to you from Freud's account of the famous Bernheim demonstration of posthypnotic suggestion.

> In this experiment, as performed by Bernheim, a person is put into a hypnotic state is subsequently aroused. While was in the hypnotic state, under the influence of the physician, he was ordered to execute a certain action at a certain fixed moment after his awakening, say half an hour later. He awakes, and seems fully conscious and in his ordinary condition; he has no recollection of his hypnotic state, and yet the prearranged moment there rushes into his mind the impulse to do such and such thing, and he does it consciously, though not knowing why. It seems impossible to give any other description of the phenomenon than to say that the order had been present in the mind of the person in a condition of latency, or had been present unconsciously, until the given moment came, and then had to become conscious. [SE XII, 260–266… A note on the unconscious in psychoanalysis, p. 261]

In the face of this kind of demonstration, which has been repeated many times, it would certainly appear to be the case that mention that both conscious and unconscious mentation may drive conduct.

There has been a dogged research effort to undermine the possibility that mentation can drive conduct by searching for a designable physiological ground to hypnosis. This effort has been completely frustrated. In their review, Laurence and Dixon muse about this great effort. They say

> …one has to wonder at the time and effort expended in continuing this quest for physiological correlates of hypnosis. No matter how one looks at hypnosis, it cannot be induced without suggestions…Instead of preserving in the search for an elusive physiological index of hypnosis, researchers should attempt to tackle the more general proposition that physiological indices can be influenced by social-psychological stimuli. [pp. 50–51] [Dixon, Michael, and Laurence, Jean-Roch. *Two hundred years of hypnosis research: Questions resolved? Questions unanswered?* pp. 34–66 in From, Erika and Nash, Michael R. Contemporary Hypnosis Research. New York: The Guilford Press 1992].

I like to think of hypnosis in the class of "strange phenomena" in the history of science. For it is the "strange phenomena" that force us to refashion our thinking so that which is strange is no longer strange. Hypnosis may be likened to movements of the planets in the sky.

In ancient times, the fixed positions of the stars in the sky had generated the theory that the earth was surrounded by a gigantic sphere in which the stars were fixed. The gigantic sphere theory is an excellent theory for explaining the fixed relationships among the stars. In that context, the planets were the "strange phenomena" because they looked like stars but did not hold fixed positions. The need to explain the planetary motions was the major impetus to the modifications of our theory of the heavenly bodies. Correspondingly, the phenomena that occur under posthypnotic suggestion make it very difficult to accept the idea that mentation cannot drive conduct.

So what should our metaphysical position be, given the phenomena of hypnosis?

In the first place, I do not believe that we need to be so terrified about there being some natural divisions among classes of phenomena. Mental and physical phenomena are separate, just as biological, chemical, and physical phenomena are separate. This does preclude that the ground of the phenomena may not be ultimately conjoined.

Neither is there any question but that there is interaction between the physical and the psychological. Becoming aware, say, of having suffered financial loss may be psychological, and blood pressure may be physical. But there is no question, but that in one case the physical influences the mental, and, in the other case, the mental influences the physical. There are any number of phenomena in which it is patent that what happens physically influences mentation, and in which it is patent that what happens psychologically influences physical events in the body.

But can we make any progress toward clarifying that relationship. For this, I would like to draw attention to what appears to be almost a throwaway line in the discussion of determinism in Freud's *Psychopathology of Everyday Life*. I think it is one of the most important sentences in all of Freud's writing. To the best of my knowledge, it has not been particularly noted. I would like to do that here.

The burden of Freud's discussion is to explain that things like slips of the tongue are not merely accidental but are, in fact, determined, determined by unconscious mentation. It is in this sense that Freud speaks of determinism.

Freud's comment is in the course of a discussion in which he seeks to distinguish his view of psychological determinism from superstition, for, Freud points out, the person who is superstitious also agrees that seemingly accidental events are mentally determined. They are not determined, as Freud argues, by human mental processes. But the superstitious person still believes that some kind of mental process, in God or angels or spirits, is determining that which is happening.

It is at this point that Freud provides a metaphysical comment.

> I believe in external (real) chance…but not in internal (physical) accidental events.
>
> [Frued, Sigmund. The Psychopathology of Everyday Life in the Standard Edition of the Complete Psychological Works of Sigmund Freud [tr. James Strachey et al. Colume VI, p. 257]

Freud here expresses an extraordinary metaphysical position. And I want to devote the rest of my time considering what this could mean.

This remark by Freud occurs in the 12th chapter which contains Freud's most explicit statement of his views on determinism. I would emphasize two things in his position. First, it severely distinguishes the realm of the mental from the realm of the physical. Second, it assigns determinism not to the realm of the physical, but exclusively to the realm of the mental.

We must not presume that Freud was just off-hand with respect to the issue involved. Freud identifies his position with the word determinism. But Freud's determinism is radically different from what is commonly understood as determinism.

The word "determinism" has characteristically meant materialistic determinism. The position of materialist determinism was being put forth by a number of well-known people that Freud was very closely associated with. The position was being put forth by Charcot, in whose clinic Freud did research and whose lecture Freud attended; Brucke, in whose laboratory Freud had worked for several years; and Meynert, in whose clinic Freud had worked.

But Freud's determinism is a different determinism. It is more the determinism of his teacher at the University of Vienna, Franz Brentano, the renowned commentator and expositor of Aristotle, and author of *Psychology from an Empirical Standpoint* and *The Psychology of Aristotle*. And it is more the determinism of Aristotle.

Let us consider Aristotle.

The classical discussion of causation, or determination of change, is to be found in the writings of Aristotle. In the Physics, Aristotle presents his basic sketch of the four causes, the matter, the form, the maker, and the end [Physics 195 a 15–25] [McKeon p. 241].

Aristotle picks this up again in the Metaphysics and deals at some length with the history of the idea of causation. That history may be particularly valuable for us.

Aristotle indicates the primitivity of the theory that all things were to be explained by matter and its principles. He writes:

> Of the first philosophers…most thought the principles which were of the nature of matter were the only principles of all things. [Metaphysics McKeon 693]

These materialist philosophers

> …assert [the elements of matter] to be the nature of things that are…[and declare them to be] the whole of substance, all else being its affections, states or dispositions. [McKeon 237, Physics 193 a]

He indicates that as time went on the position was abandoned.

> …these men the principles of this kind had had their day…[They] were found inadequate to generate the nature of things…[M]en were…forced by truth…to inquire into the next kind of cause. [McKeon 695]

I emphasize that this view that all things may be explained in terms of matter and its principles was ancient history at the time that Aristotle wrote.

# Comment on Freud and Determinism

**David V. Forrest**

David Bakan's bold venture into the problem of determinism considers contemporary thinking in biology and neurology, and relates the problem to the logical systems of the Greeks, particularly Aristotle.

Bakan's view is also crowd-pleasingly commonsensical in looking at obvious clinical phenomena and their amelioration that provides our livelihood. For most analysts, mutability of determinism is assumed. For example, while at the American College of Psychiatrists meeting on February 27, 2010, I brought up the question of determinism in Freud with Otto Kernberg, M.D., and he immediately zeroed in on Freud's intention that treatment lessened the determinism of neurotic symptoms.

To illustrate, I shall avoid hypnosis as a problematic bag of worms and cite some simpler examples of patients' behavior with their dreams and art.

I have found that "good" dreamers typically begin analytically oriented work with many vivid, even lurid dramatic recollected dream narratives that are reported with clarity and apparent completeness (although there is always a "rabbit hole" down to more unconscious levels).

As their analysis proceeds and insight into the meaning of the dreams increases, they are typically reported in a more hazy, vague, and incomplete way, almost as if an unconscious homunculus is saying, "uh-oh! They're on to me!" Analysis of the resistance aims at cutting through the fog.

In the case of another slightly hypomanic patient who is a fluent speed typist, he persists in producing sheaves of dreams which rather transparently reveal the sources of his anxieties about a current venture and all ventures. But now, after a few years of analysis, he manages to forget to bring in the typed dream transcripts. This he finds very frustrating, and berates himself. He is both annoyed with himself and in awe of the evident power of his repressed conflicts about revealing his inner motives. On some occasions he has called his wife to find the dreams and give them to his driver to deliver them to my office, whereupon he leaves the session temporarily to descend to the lobby and retrieve the dreams.

These simple examples will serve as, to me, incontrovertible evidence of (a) mental phenomena not in conscious control, and (b) voluntary overriding and taking control.

A third example is a patient who is not a professional artist, but who is strongly motivated to paint. There is a heuristic or haptic quality to his art. He starts to paint a scene, into which elements seem to intrude which, having been painted by his own hand, shock and frighten him. Sometimes the elements refer to childhood physical and emotional traumata that stem from a congenital medical condition. These symbols, such as a small wooden structure, or a certain number of flowers or trees, are meaningful to him and now to me, but not to most of the people to whom he shows his art. Sometimes he paints over the images that upset him. Once he had a dream about one of his paintings being in a museum. It was growing in size from a rectangle with dimensions of a few inches to several feet. As he tried to see it, it was moved

to another gallery, continuing to grow in size, and as he was in pursuit of it, it moved to more and more galleries that were being added to the museum so that even though it was perhaps 20×30 ft, he could not see it and, becoming anxious, he awakened.

At another level of the neuraxis, more basically neurological than emergent on a higher cortical level, one thinks of the alien hand syndrome.

And experimentally, tachistoscopic presentations of disturbing images followed by neutral masking stimuli have been shown to activate amygdaloid (brain fear region) responses without awareness of them.

Enough. Even the general public accepts similar phenomena as evidence of mind outside both awareness and voluntary control. These patients seem to exhibit entirely neither determinism nor freedom of will, but rather what I have referred to as spatial play, within limits, the wiggle room for anything in the world to move or work (Forrest, 1978).

Freud in his Project postulated a model of mental function that was as neurologically deterministic as the reflex arc that makes your leg jerk when we physicians tap on your knees with our little rubber hammers. There is an afferent sensory input and an efferent motor sequel. Oh sure, in Freud's diagram, there may be added loops (which comprise the entire neuraxis), but it all boils down to a determined loop. Levels of neurons and gangla and dendritic connections elaborate by acquiring and storing "electrical" charges from the input of the environment, but they discharge back into the causative loop when they have to, like capacitors.

This model has been adopted part and parcel by neurocomputation. Structures and programs organized as neural networks are made with Hebbian weightings and work in a very mind-like way, even to the point that their decision making becomes untraceable and emergent (but yet materially determined).

Now Freud said the world is not deterministic but the mind is. This is a seeming paradox because the mind emerges out of a physical basis, and is of the brain, which is in the world. The obvious historical influence upon Freud in this regard, which is not mentioned by him or his commentators, including Bakan, is the revolution in physics in the early twentieth century that replaced a Newtonian view with the statistical physics of Bohr that frightened Einstein, provoking his wishful statement that "God does not play dice with the universe," and quantum indeterminacy. This could be the unnamed basis for Freud's odd statement.

What differs between Freud's "world" and "mind" is complexity of organization. The brain and its mind are no less than the most highly organized matter in the universe. (Wolfram has argued that the gas around a medium star can self-organize more information than all of human history, but no matter – see Forrest, 2003.) Even a single brain has an astronomical storage capacity and staggering computational processing ability that I shall not quantify here. High organization equals low entropy equals highly determined.

At the same time, at the quantum level, the brain and mind operate in a statistical way and share dark energy with all of the contents of the universe, dark energy that will explode all matter apart forever in 14 million years or so.

How mind and neurons differ from the grains of sand and the bonfire at your average beach party is that the same quantum elements whose positions are indeterminate and the combustions whose actions are ungraspable and unpredictable

can be contained and harnessed statistically at a higher, more stable level of emergent organization, just as an external combustion steam locomotive controls and boxes disorderly fire in chambers with pistons and rods to transmit the effect, and directs sand through pipes onto the railheads to improve traction.

This metaphor illustrates an emergent phenomenon in an environmentally evolved, more complex, and also more stable living organism. Most of you and certainly I have outlived cities and empires, or at least their material structures.

Emergent phenomena and emergent mind were not in Freud's conceptual vocabulary, but since these ideas were contemporaneous, it is likely that he considered a submicroscopic quantum basis of the phenomena of mind shared with the quantum universe, in which distantly linked superimposed states coalesce to enter into the equation of each mental event, much as Pribram has spelled out (see Forrest, 1996).

What Freud also did not emphasize in his model, his Oedipal complex notwithstanding, is the mutual interactions of one ultimately determined mind with others. He left that to Harry Stack Sullivan and others indebted to him. Think of the 2010 Superbowl, which was a highly volitionally controlled game, in which both quarterbacks' perfectly guided passes found their marks over and over. Nevertheless, the Saints won, against the odds, rising above all the determined wills of the Colts, and incorporating all the decisions of the officials on the field, each with his own will, and the random vagaries of bounces and breezes and so forth. An emergent structure called a team won, combining determined entities to determine an outcome in a play sphere of statistical happenstance, and another lost, despite their determination to win. And a child in the terrible twos vies with his or her parents for voluntary control. And each patient, struggling with his unconscious mind, as a rider on a horse, to recall Freud's metaphor, enters the office of a psychoanalyst, an expert in dressage.

George Will, discussing the proposed DSM revision, comments:

> It is scientifically sensible to say that all behavior is *in some sense* caused. But a society that thinks scientific determinism renders personal responsibility a chimera must consider it absurd not only to condemn depravity but also to praise nobility. Such moral derangement can flow from exaggerated notions of what science teaches, or can teach, about the biological and environmental roots of behavior (Real Clear Politics – Website, 28 Feb 2010).

Since Freud, we psychoanalysts have the same problem as God – forseeing destination in the first dream, how to allow our experimental human subjects a semblance of voluntary free will and control and choice with which to progress through analysis and life, to leave their dreams home and then send for them.

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