

# THE UNOBSERVABLE FORCE

by

MANLY W. MUMFORD



THE CHICAGO LITERARY CLUB

20 November 1995

COPYRIGHT ©1995 BY MANLY W. MUMFORD  
(All rights reserved)



## The Unobservable Force

About twenty years ago I delivered to this Club a paper entitled "Jelly Side Down" in which I discussed various aspects of Murphy's Law; the title was taken from the well-known phenomenon that if you spread a slice of bread with jelly and accidentally drop it to the floor it will land jelly side down. I stated that the dropping must be accidental; if you deliberately drop a hundred pieces of bread spread with jelly to determine statistically how many times the jelly side would strike the floor, you would violate the premise expressed by the word *accidentally*. In that paper I pointed out that chance breeds perversity, but not on an observable or predictable schedule, as such a schedule would destroy both the unobservability and the essence of chance.

That paper suggested the existence of a class of creatures that I called the "unobservables"; such creatures performed various mischievous acts for the purpose of frustrating people; and human frustration constituted their nourishment. In the intervening twenty years, I

### *The Unobservable Force*

have reflected on that view and have concluded that I may have been guilty of the same sort of personification of natural forces as our ancestors when they attributed the weather to the gods of the wind and the rain. Now I am older and have a better understanding of the subtleties of Nature. Also I have learned that to focus too narrowly on a field is worse than focusing too broadly, because in the effort to avoid the pebbles of small missteps one ignores mountains of misperceptions.

Most people believe that a small object, such as a coffee cup or a set of keys, invariably and continuously stays in the same place from the time it was left there until the time it is moved by some human being or known cause.

This belief (the "Innocent View") is correct often enough so that, when experience demonstrates otherwise and an object has failed to remain where it was left, an unquestioning person generally blames deficiencies in his or her own vision or memory. Thus the Innocent View is relied on in ordinary human activity, as are Newton's laws of motion and the notion that the earth is flat. But experience demonstrates that there are exceptions, and this paper aims at an understanding of such experiences.

As applied to elementary particles, the Innocent View is seriously challenged by the Uncertainty Principle formulated by W.K. Heisenberg and generally accepted in the area of quantum mechanics by the academic community. This principle ("that the accurate

### *The Unobservable Force*

measurement of one of two related, observable quantities, as position and momentum or energy and time, produces uncertainties in the measurement of the other" according to *The Random House Dictionary of the English Language*) clearly demonstrates the falsity of the notion that mere observation has no effect on the item observed. And if mere observation of an object affects it, logic clearly demands that lack of observation has an equal though opposite effect.

If an object is moved unseen from the place where last observed, a force must have been applied to it during the period of unobservedness. This force is hereinafter called the "Unobservable Force." Others will have to establish how it relates to gravity, electro-magnetic force and the strong and weak forces. The Unobservable Force operates in three modes: one causes the temporary disappearance of an unobserved article and its later reappearance at the same place; the second mode causes the disappearance of an object from the last observed location and its reappearance at a different location; the third mode causes the complete and permanent disappearance of an object. Perhaps the permanent-disappearance mode is but a perverse variety of the different-location mode or a long-term variety of the temporary disappearance mode. You would have to look literally everywhere or wait literally forever to find out. However, considering the principle of the conservation of matter and energy, I suspect that at least sometimes the permanent-disappearance mode is the source

### *The Unobservable Force*

of energy necessary for the other two modes to operate: it turns the matter comprising permanently disappeared objects into energy for use by itself and the other two modes.

The notion of an Unobservable Force operating in the ways suggested above is not contrary to human experience; note the similarity to banking. A person deposits his money at a window in a bank and later withdraws it from the same window. But the money does not stay at that window, and the depositor does not observe his money before he returns to withdraw it. The bank lends the depositor's money to strangers and otherwise uses it in the bank's business, and only returns an identical sum of money to the depositor when he asks for it. Likewise, the Unobservable Force may do whatever it chooses with a deposited object, if it causes that or an identical object to appear when the depositor seeks it. Occasionally the Unobservable Force, like a bank, is embarrassed and fails to return the object immediately, but manages to do so later or at a different place. Or, as in the case of a failed bank and the permanent-disappearance mode, not at all.

You may ask how does an unobserved force "know" when an object is being observed so as to adjust its behavior to that of the observer. Attempting to take observations of the Unobservable Force would clearly be futile, so this question cannot be answered directly. One might wonder if the Unobservable Force uses extrasensory perception for this purpose, but less dubious expla-

### *The Unobservable Force*

nations are readily available. In order to observe anything a person must use ordinary sensory perception—sight, hearing, taste, touch or smell. Sight constitutes the principal means of observing a small object, and it is not difficult to conceive of a force that operates on an object only when none of the light reflected from that object is absorbed by a human retina. An ability to detect and interpret retinal nerve impulses is all that would be needed, although the ability to read and comprehend the meaning of the brain functions that relate to attention would be helpful. Such abilities would indeed constitute extrasensory perception if possessed by a human being; yet they could be part of the perfectly normal sensory-perceptive apparatus of the Unobservable Force. However, this is mere speculation. Asking how the Unobservable Force “knows” whether an object is being observed is like asking how does gravity “know” the mass and proximity of two stars to make them attract each other. There is no knowledge involved; that is just the nature of the force.

It is, of course, important not to confuse the Unobservable Force with mythical beings, like the unobservable creatures suggested in my earlier paper or the Pooka personified by the invisible six-foot white rabbit in the play and movie *Harvey*. Yet manifestations of this force may have inspired myths. A promising opportunity for further research lies in the relationship between the Unobservable Force and Murphy's Law (“that if anything can go wrong, it will”). Perhaps the force tends

### *The Unobservable Force*

to act more on objects left by disorganized persons than by organized ones, but it may be that disorganized persons truly forget where they put objects more often than do organized persons. Or perhaps vice-versa. Of one thing I feel certain: standard scientific procedures to observe and determine any such supposition will fail precisely because they comprise observation.

The December 1995 issue of *Scientific American*, which reached me last week, contains in its Mathematical Recreations Department edited by Ian Stewart an article, beginning on page 104, entitled "The Anthropomorphic Principle." This article relates Murphy's Law to the falling of buttered toast. On a British Broadcasting Corporation television show the host tossed such toast into the air three hundred times and found the results to be statistically indistinguishable from chance. Yet by assuming that toast lies butter side up on a table and is knocked off the edge of the table at a modest velocity, and by applying a formula that includes acceleration from gravity, mass of the toast, half-width of the toast, initial overhang, angle of rotation, angular velocity of rotation, and the height of the table, a British journalist named Robert Matthews has shown that for any anthropomorphic creature less than twenty feet tall who uses a table about half his height, such toast will rotate at least 180 degrees but less than 360 degrees before reaching the floor. Matthews also pointed out that Murphy's Law might by nature conspire to falsify any experiments aimed at testing it. Al-



### *The Unobservable Force*

though this is all quite amusing, both the BBC and Mr. Matthews missed the point. Except for the observation that Murphy's Law might falsify experiments, neither party realized that it is the accidental aspect of the phenomenon that provides significance. Of course, if you go around observing things scientifically and plotting them out with formulae, the Unobservable Force will, by virtue of its nature, fail to act.

The Unobservable Force does not apply exclusively to small objects; I merely used their perambulations as an illustration of the principle involved. Not only can larger objects become "lost" or "misplaced" but even whole countries. I still remember Senator Joseph McCarthy scourging the Department of State with the question, "Who lost China?" Of course, China was not lost like a teddy bear; it had been transported from one political orbit to another. As China is and was so big, the modest observation accorded to it in the late 1940's and early 1950's was inadequate to prevent that transportation. It is by no means certain that this transportation was brought about by the Unobservable Force—you must keep in mind that the very essence of such a force is that it may not be observed with sufficient certainty to establish its existence by empirical methods. This "losing" of China to the Communist side of the cold war could very easily be explained by the military victories of Mao Tse-tung and the People's Liberation Army, as well as the corrupt incompetence of the Chiang government. When you recall the overwhelming subtlety

### *The Unobservable Force*

that governs life in the Orient, you will realize that a force which cannot be observed could have played an extremely important part at innumerable levels, but so subtly that even the Chinese did not fully comprehend its work.

This brings me to a significant point: to what extent is the apparently free will of people dominated by a force unrecognizable by them or anyone else? Children, particularly, illustrate the matter. Say you leave a child at one place and then return and find the child missing from that place but later present at some other place, either happy because he didn't know he was lost or miserable because he did. In neither case will he give you a rational explanation for his dematerialization from the first and his re-materialization at the latter place. I recall a political rally at which our four-year-old daughter disappeared only to reappear on the podium as Adlai Stevenson III asked the assembled multitude if anyone claimed this lost little girl.

I also recall walking through Lincoln Park Zoo one morning and hearing, close at hand, a child's cry of "Momma! Momma!" I turned to locate the child but saw none. Instead there was a cage with a raven, looking at me beadily. A rational explanation is that the raven had heard a child cry for its mother and remembered and reproduced the cry from time to time. Yet, I sometimes wonder if some child had been temporarily transported and transformed into that black bird by a force that thrives on ambiguity.

### *The Unobservable Force*

To be effective yet unobserved, such a force must stay within the realm of ambiguity. Its deeds must be plausibly attributable to another cause; there can be no unambiguous proof that this force was involved. Yet proving that the Unobservable Force was not involved requires proving a negative, a nearly impossible task. The ambiguity of the unprovable is a vast enough realm for almost any notion.

One principle that is generally applied in areas of deep philosophical thought is Occam's Razor: the maxim that assumptions introduced to explain a thing must not be multiplied beyond necessity. This principle implies that sound thought varies inversely with the number (not the size) of the assumptions required for the explanation. Thus an explanation that requires one assumption the size of an elephant is sounder than an explanation requiring two assumptions the size of a worm even though two worms together are much easier to swallow than one elephant. To one trained in the law rather than in philosophy this principle seems peculiar, but I guess that philosophers accept it with grace. Please keep this principle in mind while you consider the Unobservable Force as one assumption in an explanation that would otherwise require two or more assumptions.

You may wonder where to look for examples of the work of the Unobservable Force. I can't offer any unambiguous answer, but do suggest looking where scientific observation is least likely to be encountered and ambi-

### *The Unobservable Force*

guity is most abundant. Politics immediately comes to mind, but that field is no longer so fertile as it used to be because of all the surveys and polls that at least purport to be based on sound observation. Also, remember that while any given politician may not carefully observe his words or his deeds, his opponents will.

An area where you might look for such examples is where the methods of science are renounced. Those who are involved with paranormal or extrasensory phenomena seem to furnish a likely hunting ground, especially if they require everyone in attendance to believe (or say they believe or at least don't openly disbelieve) in the phenomena as a condition for proceeding. I recall being taken as a small child to see the play *Peter Pan* and the scene in which Tinkerbell was near death and could be revived only if the audience averred a belief in fairies. I fervently hoped that others in the audience did not share my disbelief in fairies generally as I certainly wanted that particular fairy to live. Fortunately, enough others in the audience did voice their belief so that Tinkerbell lived. Later I realized that James M. Barrie probably had not written an alternate script for those performances whose audiences did not believe in fairies. I also appreciated the dramatic value of an acknowledgement of belief as a substitute for evidence. I don't recall hearing that *Peter Pan* has been performed much recently; I do hope that today's children have not acquired my skepticism and made the play no longer worth producing.

### *The Unobservable Force*

You may wonder about the relationship, if any, between people who purportedly use supernatural power to locate lost objects and the Unobservable Force. Are they specially attuned to the Unobservable Force and thus able to determine the location of objects the force has removed from where they were left to wherever the force has transferred them? The answer, of course, is ambiguous, and depends almost completely on the set of beliefs you have when you start to answer the question. Yet, as I have mentioned, ambiguity is one of the distinguishing features of the Unobservable Force. Also, ambiguity is a characteristic common to those who purport to utilize supernatural powers. Where does this line of reasoning lead? The answer, of course, is ambiguous.

I recall reading that people who appear adept at the use of supernatural powers have lower-than-average powers of rigorous rational thought, such as logical deduction and inference. If this is true, what is the explanation? I like to think that in the ancient past, before the Greeks invented (or at least formulated) the rules of logic, the distinction between strict logic and emotional response was fuzzy and natural. Although this distinction is now well recognized, it is not always observed. The elements of logic are relatively easy to comprehend, having been well explained by Aristotle. The elements of non-logical thought are the stuff of love and politics. They cannot and should not be explained.

A great advantage to logical thought is that it is based on a series of mental operations that virtually all

### *The Unobservable Force*

human beings, if properly trained, can perform in the same manner and with the same results. The other type of response has served plants and virtually all other animals satisfactorily (at least to the survivors). Yet logical thought comes at a price: the individual must surrender his reliance on emotional reaction or other non-logical thought in many instances. There may have been many individuals whose emotional reactions would have served them better than their own variety of logical thought, but the latter has the advantage of being almost universally communicable. And this advantage in communication enables common action by a group. Consider the starving pack of wild dogs that attacked a tiger. Communicating through a means the dogs understood, they carried out a project that killed several of them, but eventually the remainder of the pack killed and ate the tiger.

Non-logical responses, on the other hand, are based on reactions that may or may not be similar among a whole group, but may be interpreted and applied so disparately that communication fails. Thus one price of a successful complex society is the individual powers that cannot be used in concert. In some people those powers may have involved characteristics that are so uncommon that the huge majority of people cannot understand them. If those characteristics could not be objectively observed, described and classified, they would, of course, be considered supernatural by those who lacked them. For example, many birds have the capacity to tell

### *The Unobservable Force*

directions by an organ through which they sense the earth's magnetic field and use this capacity in navigation. A human being who had such an organ would, to most people, have a supernatural power. This would have been especially true before the discovery of the compass and the existence of the earth's magnetic field. Imagine what would have happened to a person who disclosed that he had such a power during the Spanish Inquisition.

Of course I would not suggest that there are some people who can observe the Unobservable Force. A greater-than-normal sensitivity to some of its effects could be the source of the apparently supernatural powers of those who find lost objects. To be sure, a person trying to capitalize on such an apparently supernatural power might find that a little charlatanry helps.

Dowsing or water witching is a splendid example. The person with the averred power, or someone who believes in him, advises the public that the dowser has the ability to locate an underground stream so that his client can dig a well at a place where there is water rather than take his chances at not finding any such stream no matter how far he digs. Implicit in this notion is the assumption that water underground is to be found only in streams, not in strata. And since a person who has found water where the dowser told him it would be is unlikely to dig another well or series of wells to test the dowser's accuracy, the latter need not be concerned about being proved wrong or silly. In-

### *The Unobservable Force*

deed, having found several producing well sites, he may truly believe in his power. The August 5, 1995 issue of *Science News*, page 90, ran an article entitled "Dowsing Expectations" by Janet Raloff; it discussed various attempts to prove or disprove the phenomenon of water witching. The conclusion, you won't be surprised to know, was skeptically ambiguous: those who had made supposedly scientific tests showing that a water witch finds water more often than the laws of chance would determine chose not to let others replicate those tests. Various scientists were cited for and against the proposition that dowsing is sound and valuable; they sounded like a bunch of lawyers.

You might think that the elucidation of a new force such as the Unobservable Force would cause quite a stir among scientists. It might even be considered revolutionary by some. But this is not likely to be the case in the near future.

An important book in the history and philosophy of science is *The Structure of Scientific Revolutions* by Thomas S. Kuhn, a professor of philosophy and history of science at the Massachusetts Institute of Technology.<sup>1</sup> According to an article in *Scientific American*, this book is commonly called the most influential treatise ever written on how science does (or does not) proceed, has sold nearly a million copies in sixteen languages, and is still fundamental reading in courses on the history and philosophy of science.<sup>2</sup> Perhaps this book is best known for so superbly using the word *paradigm* that scores of lesser



### *The Unobservable Force*

writers have tried to make their own work seem impressive by abusing it. As used by Professor Kuhn, the term means an achievement both "sufficiently unprecedented to attract an enduring group of adherents away from competing modes of scientific activity," and "sufficiently open-ended to leave all sorts of problems for the redefined group of practitioners to resolve."<sup>3</sup> Aristotle's *Physica*, Newton's *Principia* and Benjamin Franklin's *Electricity* are included as examples. Normal scientists performing normal science do their respective things using the current paradigm as a floor beneath which they do not have to look. Mostly their experiments and consequent theories produce results consistent with that paradigm, and when they appear inconsistent, experiments are done again and theories are recast until consistent results are obtained. Kuhn points out that "Normal science does not aim at novelties of fact or theory and, when successful, finds none. . . . Discovery commences with the awareness of anomaly, i.e., with the recognition that nature has somehow violated the paradigm-induced expectations that govern normal science."<sup>4</sup>

Note the phrase "awareness of anomaly." Not only must there be an anomaly, but scientists must be aware of it and, under current scientific practice, such awareness must be based on observation. If an anomaly, no matter how anomalous, is not observed, it cannot serve as a seed for a new paradigm.

Furthermore, as Kuhn points out, "The transition from a paradigm in crisis to a new one from which a

### *The Unobservable Force*

new tradition of normal science can emerge is far from a cumulative process, one achieved by an articulation or extension of the old paradigm. Rather it is a reconstruction of the field from new fundamentals, a reconstruction that changes some of the field's most elementary theoretical generalizations as well as many of its paradigm methods and applications."<sup>5</sup>

In other words, it takes the uprooting of well-established notions of how the universe works, and the abandonment of a great deal of scientific work based on those notions, for a new paradigm to be generally accepted by the scientific community. Kuhn quotes Darwin as saying, "I by no means expect to convince experienced naturalists whose minds are stocked with a multitude of facts all viewed, during a long course of years, from a point of view directly opposite to mine. . . . [B]ut I look with confidence to the future,—to young and rising naturalists, who will be able to view both sides of the question with impartiality."<sup>6</sup> Also Max Planck: ". . . a new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it."<sup>7</sup>

Unobservability of a force may, it is clear, vary from time to time or place to place. For example, the electromagnetic force was clearly unobservable by human beings (even though it was observed by birds) until people began to observe magnets. I expect that there are still

### *The Unobservable Force*

people deep in the jungles of Brazil or New Guinea who have neither observed this force nor even heard of it. Perhaps, as more and more scientists do more and more science, pieces of the Unobservable Force will fall into observability, as the jungle yields tree by tree to the bulldozer.

So far no one has published the results of research to determine whether the Unobservable Force behaves rationally, arbitrarily, capriciously, whimsically, randomly or perversely, or whether it follows any particular laws or patterns. I suspect that its behavior switches randomly between whimsy and perversity, but have no proof.

In any event, the next time the car keys fail to have remained where you left them, don't blame your spouse, children, dog or even your memory. The Unobservable Force may have been at work; if so, you are at its mercy.

**Notes**

1. Thomas S. Kuhn, *The Structure of Scientific Revolutions*, enlarged ed. (Chicago: University of Chicago Press, 1970) (hereafter cited as Kuhn).

2. John Horgan, "Profile: Reluctant Revolutionary," *Scientific American*, vol. 264, no. 5 (May 1991): 40.

3. Kuhn, 10.

4. Kuhn, 52.

5. Kuhn, 84-85.

6. Kuhn, 151.

7. Ibid.

This paper was written for The Chicago Literary Club  
and read before the Club on Monday evening, the  
twentieth of November, Nineteen Hundred and  
Ninety-Five. This edition of three hundred copies  
was printed for the Club in the month of October,  
Nineteen Hundred and Ninety-Seven.

PRINTED  
IN U.S.A.