Angell, Ian O., and Dionysios S. Demetis. "Divination and Theory Construction." *Science's First Mistake: Delusions in Pursuit of Theory*. : Bloomsbury Academic, 2010. 15–38. *Bloomsbury Collections*. Web. 26 Apr. 2023. <<http://dx.doi.org/10.5040/9781472544957.ch-002>>.

Downloaded from Bloomsbury Collections, www.bloomsburycollections.com, 26 April 2023, 11:54 UTC.

Copyright © Ian O. Angell and Dionysios S. Demetis 2010. You may share this work for non-commercial purposes only, provided you give attribution to the copyright holder and the publisher, and provide a link to the Creative Commons licence.

CHAPTER TWO

Divination and Theory Construction

But where to start? How can this Gordian knot, which entangles observation, cognition, memory and thought be cut so that coherent ideas about theory may be constructed? For this book, that starting point is the apparent sharing of beliefs that inform communities and cultures. The narrative then moves on in a journey, narrowing the focus as it progresses, to end with an in-depth analysis of the individual's cognition and observation.

The text will start with the claim that all human society is steeped in magic, alchemy, or more specifically, divination. The connection of divination to the construction of a theory may not be readily apparent, so it should be elucidated. No theory can exist without abstraction, and insofar as the construction of theory takes place in different ways, the first pillar of abstraction is in many cases an *inspired* guess. What is that but divination? From this position on divination, this book will claim that those others (scientists included) who refer to the process of theory construction as an *informed* guess supported by empirical and other evidence are actually operating within their own particular process of divination. This becomes apparent once that evidence is treated as the result of 'higher-order' observations: observations of observations of observations and so on. But more of this later.

To talk about divination, this book must first structurally de-couple readers from a lifetime of experiences, and take them on a journey back in time: back to their childhood, to a time before they put away childish things and before they traded simplicity for an ever-increasing complexity. Back to a time before they were jaded by disappointment and directed by cynicism. Back to a time when their world was a magical place, a place of wonder, and their roles were that of heroes at the centre of events. Back to a time before they had become overly socially constructed. Readers are asked to discard the jaundice of adult disbelief, and return to a world where the sheer amazement at the magic of it all still exists. This is a world of phenomena where, within the realm of imagination, within the realm of chance, within the realm of necessity, the improbable can and does happen. Although we should add that the impossible stays impossible and that improbability should not be confused with impossibility.

The authors hope to convince those readers who succeed in making this trip that a residue of this magical world of childhood still exists in all of

us. In that world we had not yet learned to suppress the paradoxes that surround theory, all theory. Before embarking on a theoretical analysis, the authors claim that seeing the world of grown-ups as an alien place, as an absurd place of denial for divination, is the best way to begin this journey, at a starting point that recognizes so-called scientific rationality as delusion.

Who Believes?

It is essential that readers be re-introduced to the world of divination that surrounds us all. For divination is the basis of all theory, and we deny its existence at our peril. Many of us vaguely know of this place, but we are too embarrassed to admit it. For whether we like it or not, we humans are a very superstitious lot. Even in today's secular so-called scientific and technological societies, a vast range of age-old mantic/divinatory practices, the so-called Dark Arts, are commonplace. Amongst the most popular are astrology (albeit in a relatively modern reincarnation), the carrying of lucky charms and mascots, wearing lucky colours and a belief in ghosts. Today's stage actors are a highly superstitious lot. It is bad luck to mention the Scottish play,¹ yet they wish each other well with 'break a leg'. Sports champions couldn't perform without their lucky putters and football boots. They thank God, or kiss a crucifix after each crucial putt is sunk or goal netted. Such behaviours can be merely a personal embarrassment to self-styled rational individuals, but often this can ascend to mass enchantments that profoundly influence whole populations. At the festival of Kumbh Mela when the planets are appropriately aligned, the amazing number of tens of millions Hindus make the pilgrimage to swim in the River Ganges. Every sixty years or so couples in China do all they can to avoid procreation during the unlucky Year of the Fire Horse. Such are the impacts of mystical beliefs when institutionalized into a society. As a social norm, strange beliefs become ritual, and are transported to become an accepted explanation of the world around us. Any embarrassment vanishes because we are no longer aware of the peculiarity. For how can it be peculiar when so many of one's fellows accept it? It is the basic tenet of this book that all social norms, specifically the way theory is used, as in all other social endeavours, are just mystical beliefs become sensible through shared acceptance.

No society is homogeneous in its strange beliefs. That is where tensions arise. 'My' beliefs are 'realistic': that is reasonable, true and sensible. 'Yours' are 'mystical': that is unreasonable, false and absurd. Thus begins the polarization of humanity into societies, as well as within societies.

Although most members of a society are happy to agree to disagree among themselves, there are always extremists who insist that all must follow 'the one true way'. These continually point out the ignorance of outsiders or subversives. However, there are many 'true ways', and so problems must arise when individuals, who find themselves with feet tentatively placed in a number of different camps, are harangued by true believers from one side or another. Ridicule (or worse) is heaped upon those who profess to be rational and scientific while simultaneously believing in contradictory mystical practices such as alternative medicine, or astrology, even religion.

In the UK, Prince Charles, whom many in the British press claim to have New Age attitudes, has had to develop a very thick skin to ward off jokes about him talking to plants: a story that was released when he mentioned his stance on this matter in a television interview in 1986. The unkind media onslaught that followed was unprecedented. What sensible individual could possibly believe that talking to plants was beneficial to them? Ironically, almost 20 years down the line, the National Institute of Agricultural Biotechnology in South Korea confirmed the finding by identifying that noise triggers a response in two genes in plants (namely *rbcS* and *Ald*); the possibility suddenly emerged of genetically modifying plants and making them flower by blasting sounds across the fields (Coghlan, 2007). Charles it seems has the last laugh.

There are occasions when laughable divinatory practices may retrospectively acquire some validity, even within science. There are also occasions when hypotheses created within the system of science may appear to be divinatory/absurd to the outsider, while going unquestioned by devotees, as with the case in quantum mechanics and the existence of multiple universes. It seems power, politics and economics interfere on many different fronts in the so-called rational construction of science. Prince Charles's stance on homeopathic medicine, of which he is a strong supporter, brought numerous outcries from the medical world; however, this did not stand in the way of him receiving an honorary fellowship from the Royal Society of Medicine. Such inconsistency is not unusual.

This book contends that there is nothing odd in any of this behaviour. All social norms are mystical. So why should any of us be embarrassed when caught out holding individual mystical beliefs? Why? Because 'the powers that be' tell us that only a fool would believe any belief other than theirs, and most people are distressed at being thought a fool.

The scientific community tells us that divining the future is mysticism, designed by quacks for inadequates. And yet that community too is geared to predicting the future, only they call it simulation of different possibilities and statistical designation of their respective probabilities. We have been socialized/brainwashed to feel uncomfortable when, although we are strongly allied to a particular divination (including science, for science itself is portrayed here as divination), we break its rules by contemplating an alternative and often contradictory divination: the first commandment of every divination is 'Thou shalt have no other gods before me' (Exodus 20:3).

Who Believes in Divination?

What exactly is this divination being introduced here? According to the Encyclopaedia Britannica it is 'the effort to gain information of a mundane sort by means conceived of as transcending the mundane'. Of course information gained from a transcendental consultation with the gods or some other supernatural force may be of a mundane sort, such as when we petition for information about the whereabouts of lost property, or marriage/fertility prospects, or for the possibility of riches to come. However, the requests may be as momentous as to concern the fate of nations.

From time immemorial, through the Oracle of Delphi,² right up to the present, political leaders have routinely looked for auspicious omens before every important undertaking. Hitler's inquisition of the occult is well documented, and has even found its way into popular culture via Indiana Jones and the *Raiders of the Lost Ark*, and since Hitler was 'the power', you can bet that no one dared tell him to his face that he was a fool. Diana, Princess of Wales, took her decision to assist Andrew Morton with *Diana: Her True Story* on a visit to astrologer Felix Lyle (Clayton and Craig, 2001). That book rocked the British Establishment and triggered events that culminated in the divorce of Charles and Diana. Astrologer Joan Quigley boasted of *My Seven Years as White House Astrologer to Nancy and Ronald Reagan*. She claimed that Ronald Reagan consulted her on foreign policy issues, such as the timing of a summit meeting with Gorbachev. In 1982 Nancy Reagan launched her 'Just Say No' anti-drug campaign following Quigley's advice on how to receive a better press. French astrologer, Elizabeth Teissier published a book *Sous le signe de Mitterrand* (*Under the sign of Mitterrand*) claiming that the President of France consulted her on a variety of issues, including the timing of the referendum on the Maastricht

Treaty for the European Union. She also supplied him with astrological data on his political opponents at home and abroad, including Saddam Hussein. The Duchess of York ('Fergie') visited clairvoyant Rita Rogers, to be told that she would marry John F. Kennedy Junior and become First Lady when he was elected President of the United States of America. Oh well, you can't win them all!

Cynics would say that, like at ancient Delphi, the really clever oracle is never too specific. Predictions must be vague enough to allow for multiple interpretations, in the sure and certain knowledge that some of the predictions can be stretched to fit observations. If we are honest with ourselves, when the oracle does deliver specific testable statements that subsequently prove to be false, as in the Fergie/Rita Rogers case, it is always the diviner who is blamed, while confidence in divination remains unscathed.

Seekers after 'Truth'

Even those who ridicule the validity of divination must still recognize it as an all too human reaction that has stood the tests of space and time. Evidence of divination, the practice of foretelling the future, or interpreting nature, curing a disease, uncovering malevolence and even solving crimes, can be found in every human culture, ancient and modern, from all corners of the Earth. It is a resounding force in every society, there at the beginning, but also at the end of every social grouping. Consider one extreme case: cosmological divination was the spark that ignited the Inca Empire of the Andes in 1440, but it was also the fatalistic seed of its self-destruction, when, on 16 November 1532, Francisco Pizarro and a tiny band of 175 Spanish conquistadores, having entered the town of Cajamarca, killed the supreme Inca, Atahualpa (Sullivan, 1996).

The rejection of mysticism by our scientific society is continually routed before the enduring power that astrology, Tarot and other forms of fortune-telling hold over the 'primitive' us, fanning the profound inner spark that makes us human, all too human.

Make no mistake, despite all the ridicule, those who consult the oracles are nevertheless seekers after 'truth'; although as Nietzsche observed, truth, all truth is merely a refinement of ignorance. Oracles are operating on a somewhat more mundane level than the inferential heights of science and logic, but they are still providing information upon which practical decisions are made in the face of a tidal wave of uncertainty. The mantic arts are diverse and yet all pervasive, as is obvious from the many forms that appear across

all human societies and across all eras. Indeed, a strong argument can be made that the use of audits and statistical models stored on computers to control the business world is just the latest mantic art.

The various methods of divination range from the inductive, through the interpretative, to the intuitive.³ Inductive divination uses fixed rules to read omens, and so a consultation is believed to be free of cynical manipulation: clients are trusting, but not stupid. However, even inductive divination will involve some form of contrivance, such as the casting of lots, watching the movement of planets, clouds or sacrificial smoke or seeing patterns in coffee grounds. Therefore it must overlap intuitive divination, as practised by a shaman who has the gift of insight and the ability to interact with a supernatural sphere. The shaman often uses trance states, spontaneously self-induced with a concoction of narcotic drugs or by some repetitive physical action, such as the frantic dancing of the whirling dervishes.

Interpretative divination, a mixture of both these methods, conforms to inductive ritualistic formulae; however, the intuitive diviner must be set apart from his fellows by a special gift: little different from a management consultant. Perhaps the amazing success of consultancy companies over the past few decades has nothing to do with scientific management. Perhaps it is all to do with the primitive hold that divination holds over us. In the particular case of consultancy, the special gift required for interpretative divination is high intelligence focused via a branded methodology onto a marketplace awash with number mysticism. Perhaps it is not the science, rather the pseudo-science of divination that makes consultancy so attractive.

So what help are diviners, who often give ambiguous, even contradictory advice? Typically, the client will ignore any advice that he finds doubtful, and continue with this or other consultations until a course of action is suggested that he can take with confidence. It is important to realize that divination itself motivates the client to act. The mumbo jumbo of divination is far more important than any message it delivers.

The information derived from divination, whether phoney or valid, must please or satisfy the client, for otherwise the client will ultimately reject the process. This previous sentence must not be read as a statement of the authors' cynicism, rather it is their sceptical recognition of divination as a social act. To them, divination has a valid utility that has nothing to do with being true or false.

True, False and Everywhere in Between

Let's get one thing clear: clients of divination are not necessarily gullible and/or superstitious as perceived by outsiders. Those clients are operating within the acceptable norms of their society. They are individuals who are at a loss as how to behave in the face of what today we would label uncertainty. In the past they had to act in response to illness, drought, death, evil or loss: when they found themselves in intransigent situations. Nowadays, clients from business face failure from shrinking markets, rampant competition, personal insecurity, a credit famine, technology out of control: what is popularly labelled *risk*. And they too feel a similar intransigence.

Thus this book starts out with the recognition that all theory is a social act of divination; that all theory has a utility that has nothing to do with it being true or false. Indeed, its utility can be simultaneously both true and false, and neither, all depending on both the observer, who is employing the operations of that theory, and the situation where he finds himself. Such operations should not be taken out of context; they are tied to the preceding observations that were unavoidably utilized for the process of theory construction. Theory therefore operates within the acceptable norms of society, and as divination, it suggests a course of action that can be taken with confidence. Theory then is all to do with uncertainty. However, be clear, uncertainty has little to do with randomness or chaos. Most of *Chaos* disappears into the background as white noise, and we pass right through it unnoticed. Uncertainty, on the other hand, is all to do with some ordered elements that have been sampled from the *Chaos*, but which appear in an unwelcome order, a strangeness that arises from an unexpected and surprising conspiracy of events.

Chaos is not disorder, not even un-order; it is pre-order. It is the multiplicity of complexities that characterizes any system prior to any distinction made by human thought. Thus any notion of a Theory of Chaos is an oxymoron, because theory already implies an order. That is why this book rejects the popular misinterpretation of chaos as disorder, and why in the text the word is italicized whenever its meaning as pre-order is intended. *Chaos*, therefore, is unapproachable by thought. Even these previous sentences, and particularly the use of the word 'because', are vague attempts at imposing order, and so are inevitably misunderstandings. All understanding of *Chaos* is necessarily misunderstanding; human thought is such absurdity piled recursively upon itself. For that recursion must miss the non-linearity in the situation: recursion is linear and thus artificial, unnatural, because it

simply flip-flops between subject and object, with the two states naturally remaining distinct residuals at each step.

The human 'understands' a 'piece of the world' as a particular categorical 'thing'. Then he recursively focuses on understanding the rest, the residual category, until by combining together the separate and separated fragments, everything deemed relevant is 'understood'. According to Bertrand Russell 'every advance in a science takes us further away from the crude uniformities which are first observed into a greater differentiation of antecedent and consequent, and into a continually wider circle of antecedents recognized as relevant' (Russell, 1954). What is this but a description of tunnel vision? However, by changing focus from the thing, onto other things (within its residual category), the original thing goes out of focus. Hence the concept of a 'thing', and thus everything else, is a fallacy. Even the 'concept of a concept' is a paradox, but one that allows cognition to function undisturbed by the peculiarities.

In thinking about thought, both the 'thinking' and the 'thought' are simultaneously and reflexively subject and object of the process: a non-linearity. However, any rational theory is linear and requires a separation between subject and object. Causality requires both a subject: the thing affecting, and an object: the thing affected. The trick is to cut through this Gordian knot of uncertainty and paradox, and just get on with living by making the most of *Chaos's* bounty.

In the academic literature, uncertainty is often related to risk and the management of risk, implying an elusive underlying assumption that uncertainty can be planned for. Apparently risk consists of a series of isolated singularities. Hence individual events, for which tactics and strategies can be developed, and thus risk, can be managed. Typical examples in the financial services industry include calculations of 'value at risk' that attempt to simulate both the amount of money put at risk for a particular course of action and its exposure. But calculations like these are just another layer of divination, masked by the delusional efficiency of mathematical techniques. The crisis of 2008 was the outcome of what this unquantifiable exposure to risk came to imply for financial markets worldwide. In a system of such complexity, control of the behaviour of the system itself becomes extremely difficult, if not impossible (Mandelbrot, 2005). This confusion is often responsible for the confounding of uncertainty and risk with 'true' *Chaos*. Even the very act of articulating a risk implies an imposition on the *Chaos*, which actually ceases to be *Chaos* when it is sampled.

The world inhabited by humanity is intrinsically strange, fantastical, magical. We are deluding ourselves if we think that we can always make sense of that strangeness. *Managing Uncertainty* is just another futile attempt at controlling the conspiracy of strangeness. There is order in uncertainty, which is unwelcome because it approaches us out of the void. It doesn't sit nicely in the authoritarian glare of some universal theory. However, there can be no ignoring that strangeness in the human condition, as it inevitably returns to bite us.

By collecting all these strange events together under the label of uncertainty, and by organizing ourselves as individuals or in groups, we hope that the surprising events will either go away or become benign/advantageous. We humans create structures that transform uncertainty into risk: a heady mix of hazard and opportunity. Thus we swap hopelessness for the optimism in a plan of action. In other words we submit to theory in order to gain a tenuous handle on uncertainty.

However, different ages have different perceptions of uncertainty; and so there are different approaches to theory construction and application, delivering different risk assessments and prompting different decisions. Note this book stresses decisions not solutions, because from its position there are no solutions, only contingent decisions. And each decision is itself a start of a new journey, not the end of an old one.

Indeed, there is no grander delusion than the production of a solution, with its linear insistence on cause and effect. A decision about a particular problem domain or a decision to act upon a situation can only trigger changes with undetermined consequences, and these in their own turn may become the basis for requiring even more decisions, and so on. 'Solutions' always 'multiply, proliferate, disperse, circulate, diversify, diffuse the original problem' (Rossbach, 1993). Cause and effect merely implies a focal point, choosing a single linear path through this multiplicity, which can only exist within the scope of either: (1) an individual observer who prescribes a solitary function for a system – a prescription that becomes self-fulfilling, and as a consequence the coupling between cause and effect appears even tighter, or (2) many observers who operate single-mindedly, with that single-mindedness predetermined by a shared belief in cause and effect.

From *Chaos* to Computers

Clearly different ages have different ways of dealing with uncertainty. Because of science and new technology we have entered one of those different

ages, where the very nature of uncertainty has changed. In describing the scientific approach to uncertainty, this book presents all scientific/technological artefacts, and indeed thought itself, as various means of both imposing linearity and denying non-linearity.

As Nietzsche so cleverly states:

One should not wrongly reify 'cause' and 'effect' as the natural scientists do (and whoever, like them, now 'naturalizes' in his thinking), according to the prevailing mechanical doltishness which makes the cause press and push until it 'effects' its end; one should use 'cause' and 'effect' only as pure concepts, that is to say, as conventional fictions for the purpose of designation and communication – not for explanation. In the 'in itself' there is nothing of 'causal connections', of 'necessity', or of 'psychological non-freedom'; there the effect does not follow the cause, there is no rule of 'law'. It is we alone who have devised cause, sequence, for-each-other, relativity, constraint, number, law, freedom, motive, and purpose; and when we project and mix this symbol world into things as if it existed 'in itself', we act once more as we have always acted – *mythologically* (Nietzsche, 1990).

For some people, descriptions that lie beyond cause and effect may appear difficult to conceptualize. This is particularly the case in the authors' own subject of Information Systems. There, many of the difficulties stem from not appreciating the problematic nature of descriptions based in causality. These problems become apparent in the failure of the prevalent and futile belief that computerization can perfect the administration of the human condition.⁴ This *pixie dust school* of technology presumes that something wonderful will happen when the magic powder of (particularly computer) technology is sprinkled over each and every problem. The result: an appalling record of slippage, price overruns and failure with large complex projects.

Today's predominant thinking focuses on computerized objectivity, and displaces/downplays the effects of the context sensitivity both of observation and the observer within the technological domain, and of the subjectivity of the underlying assumptions that operate there.

It is all too easy to forget the premises that underlie the functioning, or otherwise, of technology, leaving the observer unobserved within the technology, thereby reinforcing the perception of technology as an impervious black box. This can be seen with computer technology: for what

is an algorithm if not a transcendental observer operating within the realm of that technology? A human observer gives birth to the myriad different algorithmic representations that are utilized within the technology. Then the algorithms in themselves become observers in a world composed of bits and bytes; a world that is built around different rules, but where the principles of observation are still valid. Algorithms do have a purpose though: they sample *Chaos* into uncertainty, and further sample that uncertainty into risk, setting it down as categorized elements. Decomposition or deconstruction of such categorized elements proceeds through the possibility of them being embedded within the realm of programming languages. Problems arise whenever claims are made concerning the feasibility of describing, manipulating or even creating non-linear systems with complete disregard of the very linear way in which the process from *Chaos* to computer code is manifested, or the linear way with which technology processes information. Too often, the idea that the entire enterprise of information processing is merely a simulation is quietly forgotten, and the audience is left in awe of the temporary benefits that such a simulation provides.

Such an imposition of linearity in computation is carried out in a step-by-step process that is fundamentally restricted by both hardware and software. The construction of a technology of computer-based artefacts, which is built and must operate within a strictly defined physical domain, is therefore limiting each artefact's function for a series of reasons: physics interferes; logical operations create path dependencies; functions are performed on the basis of strictly specified rules, but how are these rules constructed?

This idea that technology is imposing and enforcing linearity is something that will be elaborated in due course. The current human perception of risk must be reformulated; old answers have themselves become hazards. The old decisions no longer work, as is apparent in the current widespread public distrust of so-called experts: shamans of discredited theories. Science too has proved a Pandora's box, releasing a swarm of new troubles into the world, as is clear with global warming, radioactive waste, etc. We will need new forms of divination, of theory, to reflect on both new forms of risk and even more importantly on the construction and utilization of current theory.

Price or Cost in a Risk Society?

For the past few centuries, at least in the West, we have deluded ourselves that our world is a rational causal system, in which social problems could be viewed *ex post*, and then treated scientifically, predominantly as sequence of

technological tasks. Our grasp of the socio-economic context within which the problems arose has been limited and inadequate. Problems were/are seen merely as a consequence of a social system's functioning, which could be 'solved' by tweaking the system. Rarely are they seen as an emergent property of reflexive interaction between various societal stakeholders and the technology they have created. The former naive stance has led inevitably to the occasional failure of so many of our systems, although 'rationalists' persist in treating each failure as abnormal. But for how much longer can science deny the clamour of doubt?

We keep hearing the word risk being identified with hazard; that risk is essential for innovation is regularly quietly ignored. There is a great deal of discussion on risk management, which shows all the signs of being just another management fad. A great deal of emphasis is being placed on auditing and the controlling of costs. Yet we cannot know the cost. The price yes, but not the cost. Cost has a life cycle. The price is here and now, the cost accrues from here to eternity: ask any owner of real estate with asbestos-lined buildings in their portfolio, or with other challenged properties; ask the Central Banks, which early in 2008 had to pump huge sums of money into collapsing financial institutions following the failure of the sophisticated financial instruments that were manipulating sub-prime mortgages in the USA, and in doing so precipitated a maelstrom of non-linear feedback. In his book *Carrying the Fire* (Collins, 2001), Gemini 10 and Apollo 11 astronaut Michael Collins showed that he, at least, could relate to the difference between price and cost. He was asked what went through his mind at 'blastoff'. His reply: 'Well, you think about the fact that you are at the top of 6 million parts, all made by the lowest bidder!'

In our unknowable future, unavoidable problems will arise. By shunning risk, members of society will refuse to admit the existence of serious social pollution, or they will refuse to accept other interpretations that could deal with it. Nevertheless, change is essential if the risk society is to survive and prosper in this future (Beck, 1992). Western society has reached that point where its means of dealing with the world have become degenerate, pure ideology, mindless chanting, which is futile against the inevitability of social breakdown. For 'the froward⁵ retention of custom is as turbulent a thing as an innovation' (Bacon, 1999). Then as the rituals fail to deliver safety, ultimately the society will lose faith in its methods for self-control, and ultimately lose faith in itself. For a point will come when that society knows something is radically wrong, but because of ritual it is blinded and unable

to recognize just what the problem is. The ritual, internally consistent yet externally absurd, often takes on a life of its own. Then what is interpreted as (scientific) reality, and therefore seen as important, is the contrivance of (scientific) ritual rather than the reality itself.

Freeze, Fight or Flee?

Nevertheless, when faced with the dangers of this uncertain world we still have the three age-old choices: freeze, fight or flee. Forget the myth of rationality; when confronting the contradictions of uncertainty, our responses tend to be impulsive and instinctive, unconscious and automatic. For we humans are first and foremost feeling animals, rather than thinking ones. Our emotions are tied inexorably into what we do when confronting the torrent of incomplete or asymmetric information all around us. And here lies the source of power that theory/divination holds over any seeker after truth.

The ritual application of theory lifts humanity out of the overload of day-on-day problems. It is a safety valve that gives us time for circumspection and clarifies our concerns. It short circuits the inertia and precipitates action. By using a theory, we are seeking a pragmatic and socially acceptable course of action. Intransigent problems are attacked with legitimate solutions in such a way that the seeker does not have to justify his actions. Theory delivers useable information. It breaks the logjam of indecision. For what is information after all? Merely the appropriate interpretation of data that forms an acceptable (legitimate) basis for decision-taking amongst one's peers. Just because scientists accept only the information from their own scientific form of divination, why should scientific data be the only form available to the rest of us who are less committed to that particular way of 'transcending the mundane'? For no matter what the theory, it is always and already beset by paradox.

Every Age finds significance in its own particular and peculiar brand of theory/divination. In *The Bible Code* (Drosnin, 2002), Michael Drosnin tells of three highly reputable Israeli mathematicians, Witzum, Rits and Rosenberg, who laid out the text of the Torah in rectangular blocks, and then checked every tenth, fiftieth (whatever) letter for omens. Using the text of the Book of Genesis they uncovered biographical details of various important medieval rabbis. Has God been waiting millennia for humanity to invent the computer for His messages to be uncovered? Furthermore, many of these messages were decoded centuries after they would have any

relevance. Surely God, if He exists, has better things to do with His time than play a *sealed envelope* type of conjuring trick? More likely this is just another demonstration of faith deluding even the most rational thinkers.

Either way, it didn't take long for the sceptics to find similar predictions by using the same techniques on other books, like *Moby Dick* (Melville, 1994). Of course, Drosnin, like all shrewd operators, says these messages are just warnings, which if heeded can stave off disaster. This is just as well for him, since his own death (in Athens of all places) has been foretold by a critic using the same decoding technique.

Apparently, the Bible's text hides predictions of the Holocaust, the Moon landing, various political assassinations and much more. Most alarming, the date for Armageddon had been set for 2006. Taking a break from their book writing, and while enjoying a very pleasant lunch in Soho in the autumn of that year, the present authors could predict quite confidently that the world would NOT end later the same year. They are equally confident in rejecting the predictions of the End of the World in 2012 that are based on spurious interpretations of the ancient Mayan calendar.⁶ In common with those who believe in the afterlife, the authors have no fear of contradiction: if the world were to end in any prescribed year, then everyone with proof to the contrary of their prediction would be dead. That they were tackling the final editing of the text in the summer of 2009 showed their confidence is well founded, at least in rejecting Drosnin's predictions. However, at the same time they do not deny humanity's enduring fascination with such prognostication.

The art of divining, or indeed theorizing, namely ritually constructing delusions, may have subtly changed its form across continents and throughout history, although there does seem to be some human universal at work; some intellectual imperative that has been delivered by our evolution from our ancestors on the savannah, and even earlier.

So who is to say that divination/delusion, whether in its ancient, modern or soon to be future form, is inappropriate? No matter how sophisticated we are, we all have a sneaking regard for the interpretation of omens that will uncover some divine purpose in events: augury. Some forms of divination have even received certain respectability in our scientific society. After all, both Sigmund Freud and Carl Gustav Jung have given legitimacy to various kinds of oneiromancy: dream interpretation.

Meanwhile, sceptical scientists like Professor Richard Dawkins line up to ridicule the claptrap, all the while selling their equally absurd notion of the 'rational human'. However, it is not just scientists playing this game

of superior ‘understanding’. Religion too has its pedants. Like meets like whenever scientist Dawkins combats *Creationist* champions from the American Bible Belt over the latter’s denial of Darwinism and their claims of an Intelligent Design of life on earth. Apparently it’s all too wonderful to have occurred *a la* Darwin, *ergo* God did it, intelligently. The problem here is neither science nor religion, but the attitudes of scientific and religious bigots, both certain that they have all the answers, when there can be no universally applicable generic answers, only contingencies – as the present authors insist from their own bigoted certainty. That the scientists won the subsequent court battles shows only the superior legitimacy of science over religion in the American court system, despite the irony of witnesses having to swear on the Bible. However, the victory of science in the US courts had nothing to do with truth or falsity. Winning, as always, is determined by power, which is why science rarely wins in the court of public opinion.

Scientists smugly use *rational facts* to debunk astrology. According to the science of astronomy, if we insist on dividing up the heavens into the signs of the zodiac then there should be a thirteenth sign (Ophiuchus). Scientists prattle on about the *fallacy of personal validation* and of generalized, trite and bogus predictions. Of course, to a certain extent this position is valid. Humanity does have a tendency to focus on successful hits, and overlook or forget all the failures. But we still read our horoscopes.

Scientists claim that as a pattern seeker, the brain too often sees causation where there is only correlation: an assertion repeated in Chapter 5. Despite this claim, many scientists still fall into the same trap and concentrate on looking for linear causality in whatever topics interest them. Thus they fail to see the importance of non-linear effects. They could ask about any disadvantages in this tendency to linearity. Getting too involved with rational theories can also be dangerous, and even seriously jeopardize an individual’s survival prospects. Archimedes may have been the greatest thinker of his age, but streetwise he was not. During the sack of Syracuse in 212 BC he was confronted by a Roman soldier. His apocryphal famous last words were: ‘stand away, fellow, from my diagram!’⁷ By following the demands of his intellect rather than those of the soldier, he set up a chain of events that led inextricably to his death.

This feeling of superior ‘understanding’ and an overwhelming feeling of truth within the construction of theory did not even escape Einstein (who was quite modest by all accounts) in his statement that ‘Politics is for the

moment, but an equation is for eternity', made when declining the offer of the presidency of the new state of Israel in 1948.

If Galileo had been less dogmatic over his understanding of planetary motion and had signed a document stating that the sun was not at the centre of the solar system, then the Inquisition would possibly have let him off the hook. They wanted him to say that the heliocentric theory was only a model that was useful for calculating planetary motion and that it was not the truth (Feyerabend, 1975). How perverse that quantum physicists, who see a multitude of possibilities in parallel universes, have more in common with the Inquisition than with Galileo and have become far less dogmatic in their own interpretations of the world. At this stage it will suffice to mention that, at the time of writing this book, quantum reality is prone to eight different interpretations of the world. These are Quantum Realities QR1: There is no deep reality; QR2: Reality is created by observation; QR3: Reality is an undivided wholeness; QR4: Reality consists of a steadily increasing number of parallel universes; QR5: The world obeys a non-human kind of reasoning; QR6: The world is made of ordinary objects (neorealism); QR7: Consciousness creates reality; QR8: The world is twofold, consisting of potentials and actualities (Herbert, 1987).

'The Greatest Superstition'

Whatever the philosophers of science may say to the contrary, most scientifically minded individuals do delude themselves about an 'objective' reality. They have their own superstitious mantras: 'no event is without a cause'; 'given enough time and enough resources we will find the Answer'. They have no truck with the apparently arbitrary events that do occur in their apparently ordered world: events that are subject to numerous and various interpretations. Moondog, a.k.a. Louis Hardin, the blind New York street musician and poet, really got to the bottom of this situation with his observation:

What I say of science here, I say without condition
that science is the latest and the greatest superstition (Hardin, 1959).

Nietzsche was slightly more colourful in his analysis. 'When one rows, it is not the rowing that moves the ship; rather rowing is simply a magical ceremony by which one compels a demon to move it' (Nietzsche and Hollingdale, 1996). Something beyond our understanding, which he teasingly calls a demon, is

at work, and we poor humans are at the mercy of the outcome. Never able to comprehend properly, we nevertheless attempt to describe the effects such demons have on us and use those descriptions to intercede with the demons for our benefit.

Science is such a divinatory practice. Granted it is a highly sophisticated search for truth, but the ineffable demons will always ensure that science is flawed. Science is limited. It is focussed in a peculiar form of tunnel vision and can only ever describe part of the picture, at the price of unleashing numerous paradoxes.

The Absurdity of a Gravitational Force

We will illustrate what we mean by using the example of gravity: a concept that we all take for granted. Gravity doesn't cause objects to fall; objects fall all on their own. Gravitational theories are just the ways we describe what we observe: a pale snapshot of what is necessarily so. The phrase 'necessarily so' is the authors' shorthand way of stressing that 'the answer to the world, the universe and everything'⁸ does not come in an equation. Forget the answer, there is not even a question. The world, the universe and everything is *Chaos*, largely inaccessible and beyond our complete comprehension. There is no ontological substance to what is necessarily so, and in order for humanity to kick-start its cognition that substance has to be introduced. Human cognition projects metaphors onto the *Chaos*; these metaphors all echo with paradoxes. Even our use of the word *because* is paradoxical; it being just another product of our insistence on imposing causality on the world, and our willingness to be convinced by the delusions fed back through cognition. What is more, the authors themselves have to admit that the descriptions they expound in this book, and which convince them and hopefully the readers, are also paradoxical, and necessarily so.

There is no causality in the *Chaos*; causality is all in our heads. *Chaos* does not operate causally according to mathematical laws. The so-called Theory of Chaos (here Chaos is deliberately not italicized) merely meddles with non-deterministic mathematical structures. That having been said, *Chaos* itself is not arbitrary, although it does not operate 'because' of anything. It is as it is; whatever that may or may not be. We humans simply stumble around in the *Chaos*; thankfully with the capacity to project order onto it. Then we fish out regularities, but with numerous interpretations at various levels of sophistication, although all restricted by linear thinking. Causality

is a blunt instrument that convinces us of the validity of our interpretive descriptions, of what is necessarily so. This is hardly surprising since causality is the self-reinforcing argumentation we use to convince ourselves. Causality, be it in a mathematical or any other form, is merely a means of description and the basis of questioning, but one that itself cannot be questioned.

And so let us go back to gravity. Gravity is a classic example of a theory that has a utility, but no real explanation. There is no mathematics intrinsic to gravity. We merely use mathematics to describe what we choose to call gravity: the phenomenon of things falling in an apparently consistent manner. Newton's apple didn't fall because of the force of gravity described in his mathematical formulation; it fell because that's what apples necessarily do, along with all other objects on this planet. Newton came up with the concept of gravity to *explain* that necessity, and his description inevitably involved paradoxes, not least being the notion of the force of gravity. Despite Einstein having identified the problems with Newtonian mechanics, secondary schools still teach the *Inverse Square Law*. Students are still told that two bodies attract one another with a force proportional to the product of their masses and inversely proportional to the square of the distance between them.

Following the publication of *Principia Mathematica* in 1687, right up until the early twentieth century when Einstein started formulating his space curvature ideas on gravity, Newton's descriptions of the law of universal gravitation and the three laws of motion led to many useful scientific advances; and yet they are not strictly true. This must beg the question: are there degrees of malleability in scientific truth, in the way we describe, more or less accurately, the reality in which we live? With multiple descriptions being drawn for the same observable effects, isn't there an inconsistency percolating within the idea of *Truth*?

Newtonian gravity implies that the effect of gravity is an example of action at a distance encapsulated in the Inverse Square Law. Apparently, any two bodies are attracted by a *force* that is proportional to the product of their masses and inversely proportional to the square of the distance between them. How does the force come into existence, when it requires a measurement of both the masses and the distance between the two bodies, yet each body, whatever 'it' is, has no observation/cognition of the other's existence, or means of measurement? What is this but Nietzsche's description of divination as demonic action?

Apparently each body sends out mystical sub-atomic probes to every corner of the universe, enabling the body (of whatever size) to sense and ‘calculate’ the forces acting upon it from the instantaneous feedback it receives, as the gravitational force has unlimited range. How does gravity ‘decide’ what the apple is, what the unity of each body is, where it starts and ends? How does each atom or particle send out probes? The gravitational force then acts at the centre of gravity, which happens to be a point: even an atom isn’t a point! A point is a piece of space that has no size, no substance, it isn’t there, and yet gravity pulls at it, thereby dragging the whole body along. This happens even if the centre of gravity is outside the body, as in the case of a doughnut. How silly, and yet for centuries this interpretation seemed perfectly reasonable. The ideas are intrinsically non-sensical, but they have a utility. It is that utility that for centuries routed the nihilistic objections, despite the ideas being wrong.

The Newtonian interpretation of gravity was accepted because it works for most practical applications. When used as a mathematical schema by a human brain, it has great utility, enabling us to fire projectiles over large distances with great accuracy, to calculate the orbits of the planets except for a slight problem with Mercury, and to send rockets to the Moon. It works in everyday mundane experience with the notion of balance in the Principle of Moments. And because it works, few until Einstein asked how each body can sense the infinite number of others out there, and move along a mathematically prescribed trajectory. So how does gravity work? How else, than by the necessity (of a Nietzschean demon) that somehow makes what happens in the world of phenomena correlate closely with our mathematical models? Not surprisingly, we can then make the leap of faith from correlation, to a scientific causality, and insist that the world acts according to our models. Belief in Newton’s model lasted for centuries, but eventually faith in it crumbled among the scientific elite, although certainly not among the general public. Such is the ultimate fate of all models.

Quoting from Einstein and Infeld’s book on the *Evolution of Physics*, we see that:

Newton’s gravitational law connects the motion of a body here and now with the action of a body at the same time in the far distance. This is the law, which formed a pattern for our whole mechanical view. But the mechanical view broke down. In Maxwell’s equations we realized a new pattern for the laws of nature. Maxwell’s equations are structure laws.

They connect events which happen now and here with events which will happen a little later in the immediate vicinity. They are the laws describing the changes of the electromagnetic field. Our new gravitational equations are also structure laws describing the changes of the gravitational field. Schematically speaking, we could say: the transition from Newton's gravitational law to general relativity resembles somewhat the transition from the theory of electric fluids with Coulomb's law to Maxwell's theory (Einstein and Infeld, 1966).

This change in how Einstein perceived gravity demarcates a considerable shift. Gravity is now seen as the background, the continuing necessity, the eternal normality against which everything operates, and which is structurally coupled to that everything. It is a field, and not a force. An apple doesn't fall because of gravity, it falls *because* it happens to be in the vicinity of masses that create a field of gravity by bending space, and hence gravity doesn't just suddenly swing into play at the behest of a calculation. It's not the application of a force that makes the apple fall; falling is what everything on this planet does naturally, necessarily. However, the falling only becomes noticeable when whatever is blocking that necessity is suddenly taken away.

Everything in space moves relative to gravity, not because of it. What we think of as gravity is already and always everywhere. Gravity is NOT a force. At least, not in Einstein's ingenious description within the context of general relativity, where gravity is a function of mass, rather than a force exerted by the mass. Mass bends space and hence objects fall because the space they find themselves in is bent. Nobel Prize winner, physicist Richard Feynman admits that:

It was a shocking discovery, of course, that Newton's laws are wrong, after all the years in which they seemed to be accurate. Of course it is clear, not that the experiments were wrong, but that they were done over only a limited range of velocities, so small that the relativistic effects would not have been evident. But nevertheless, we now have a much more humble point of view of our physical laws – everything *can* be wrong! (Feynman et al., 2006)

The authors interpret Feynman as saying Einstein too can be wrong, although because we are currently convinced by relativity, we are blind to the paradoxes that inevitably lie at the core of that particular description

also, indeed at the core of every description. Only when our beliefs have been rattled, do we permit alternative descriptions to enter our thinking, although they too will have their flaws, but to which we will be then currently blindsided.

According to Victor Hugo ‘there is nothing more powerful than an idea whose time has come’. Nothing is more futile than defending an idea whose time has gone. Stephen Hawking⁹ in his book *The Universe in a Nutshell* tells of how the Nazis had pathetically campaigned against Einstein’s ideas simply because he was a Jew. They published a book entitled *One Hundred Authors Against Einstein* in an attempt to discredit the Theory of Relativity. When a journalist asked Einstein to comment, his devastating retort was: ‘Why one hundred? If I were mistaken, one would have been enough’.

Yet Feynman is saying ‘everything *can* be wrong’. Science is a perpetual search for new ideas. Consider the contemporary trend in re-describing gravity, where some scientists postulate hypothetical elementary particles called gravitons that must be mass-less. Here we can observe a beautiful irony: the particle that is supposed to be responsible for gravity cannot in itself be prone to it. And what of Einstein’s notion of the bending of space? How paradoxical that the model convinces us, because the metaphor that justifies its use is of objects moving along surfaces that just happen to be in our familiar three-dimensional space, which are of course under the influence of gravity.

Humanity lives in the realm of imagination, in the realm of chance, within the realm of necessity. Science deals with what is necessarily so, and requires observation for dealing with the necessity of its own evolution. However, around that, we humans can use our imagination to build the possible yet improbable. Divination is not the antithesis of science, rather it is both an extension of science and a necessity at its core. Like every other form of theoretical divination, science has its own fictitious sacrificial altar of perfection at the centre of its universe. Thankfully not all scientists are pedantic in their expressed beliefs; at least medical scientists have the intellectual honesty to call what they do *practice*, something which may appear strange since this practice actually uses a combination of biology, physics, chemistry and technology.

Self at the Centre of Everything

Actually, humanity is willing to accept any crazy idea, any absurdity, as long as it works, as long as it has a utility, and in working it makes sense,

for a while. Consider the notion of perfect competition in Economics: a classic example of absurdity. For if competition was perfect, the reason to compete (the profit) is taken away.

Sense is not uncovered, it is manufactured out of such absurdity. How paradoxical? The utility of an idea doesn't come from it being sensible; the utility must be there originally so that we are convinced that the idea in itself is sensible. That utility is mined, a gem rough-cut from the *Chaos* all around, and polished self-referentially as if by magic to a self-reinforced and self-sustaining point where we believe the polishing itself creates the utility. The proposition underlying this book is that all individual human experience, of oneself and of others in the world, is imaginary: a delusion. As humans, we create, manipulate and are manipulated by such delusions. Thus we make sense of the world so as to survive and prosper. Consequently each culture, each collective, each meeting of minds is just a common denial of absurdities that delivers the mutual benefit of utility. However, eventually in certain contexts the original utilities will fail, but we are still left with the mode of sense-making intact, albeit now non-sensical.

Age-old Mantic Practices

When scientists sneer at the absurdity they see in divination and equate it with mysticism, they fail to realize that mysticism is simply how magic is interpreted by the uninitiated. From within their own vantage point they see only the absurdity, not the utility. They fail to see that science hasn't routed divination, it remains all around us; divination is a fundamental part of human social action, and of thought itself. We must recognize that the magician/sorcerer is merely an agent of social change, and magic is the language whereby that change is achieved. We regularly reinvent many old mystical ideas without realizing that we have simply repackaged them. There are numerous examples in modern business. Age-old mantic practices lie lurking, masquerading as a management science. For example, there is the very ancient and still strongly held belief that the gods may be coerced into interceding with fate. A position not far removed from the wish lists of mission statements and strategic statements. What is bonding on management outward-bound courses but an updated version of going out into the desert to find wisdom? Dressing-down Days and the Office Christmas Party are all updated versions of age-old Mardi Gras carnival rituals. In ancient Egypt they believed that by sleeping in a temple (incubation) they would be inspired by the 'god in residence'.

Perhaps brainstorming away-days in expensive hotels is the modern equivalent.

Look closely at consultancy, and we see interpretative divination. It is no coincidence that the vocabulary of psychics, palmists and spiritualists include the words consultation and client. Nowadays, however, our diviners call their inductive rules for reading the omens a *methodology*. As was noted above, these rules are needed so that the consultation is believed to be free of cynical manipulation: remember clients are trusting, but not stupid. Consultants are today's shamans, only we don't call them that. But as everyone who has benefited from hiring a consultancy company will tell you, the intuition of an individual consultant is far more important than the branded methodology of a particular consultancy company. 'The music is not in the notes'¹⁰: it is in the musician. The sorcery is not in the ritual, but in the sorcerer.

The authors insist that underpinning all scientific prediction are the twin fallacies that the past and the future are some kind of continuum, and that the future can be linked with the past in an approximate way via a mathematical model/trend. To succeed, all we have to do is to find the parameters of this model. Unfortunately, or rather fortunately for humanity, our science and technology cannot hold the future captive in the linear chains of mathematical models. In our pathetic attempt to capture certainty, we cannot arbitrarily use such models to project the lessons of hindsight onto the future. That is nothing but walking backwards into the future. Or it's like driving a car by looking into the rear-view mirror at the road behind: fine as long as there is no bend in the road ahead.

Predictions based on the assumption that tomorrow will be the same as yesterday may be good enough in the short term. However, the simple expedient of devising formulae that 'explain' trends, and then fine-tuning the model by fitting parameters, and finally extrapolating it into the future, ignores the reality of the feedback that will always expose paradoxes and will end with observations diverging from the model.

The discipline of Econometrics immediately comes to mind in the way it tries to predict future prices, for example through regression models. The problems of this approach are swiftly exposed, even in the prologue of some introductory econometric textbooks: 'to find something meaningful in all that data for forecasting purposes must be so plainly impossible that there will always be endless scope for well-paid advice on how to do it' (Kennedy, 1998).

Divining the Future

The past and future are totally different animals. The present filters out most of the uncertainty as the future becomes the past, although even the one and only past is open to multiple interpretations. But worse, this is an irreversible process because of the intrinsic non-linearity. The very act of filtering feeds back and changes the filter. The present is an arbitrary, inconsistent and turbulent filter. Mathematical extrapolation of the past on the other hand assumes a fixed filter; it is a fixed process that constructs certainty. In times of relative stability such mathematical approximation may be justified, but in times of ultra complexity, uncertainty or catastrophe, this limited way of thinking is futile. Over 200 years ago, Anglo-Irish statesman and philosopher, Edmund Burke phrased this well: 'You can never plan the future by the past' (Burke, 1975).

The trick is not to predict the future, but to make it. To win in this *Brave New World* (Huxley, 1932) we must make our own future, our own version of truth, concerning the play-off between the contingent and the unforeseen. It's no good dwelling on the past, for the future is utterly different: a diversified set of societal patterns formed by the competing forces of political, sociological, commercial as well as technological potentials. These potentials, supplied by individuals, by business in general, by governments, by society at large, by the world at large, are the components that are all brought together by social and economic forces. From this confrontation, natural selection creates the dynamic, self-organizing mosaic that is the future.

This mosaic is no arbitrary pattern. Behind each potential there is design, and behind each design there is vision. Not that any particular vision can see into the future. It can't. The future isn't there yet. There can be no vision of the future, but there can be, there must be, a vision for the future. A future that isn't there yet can't be discovered. That future is created; created by men and women of vision: sorcerers. Whether we like it or not, we are faced with a very simple choice: create our own future, or fall into somebody else's; take control of our own destiny or be at the mercy of another's whim.

By the end of this book the authors hope that like them, readers will answer the question of why they believe in divination by saying that delusion is not mysticism. Then they will come to agree that divination is critical in the development of every theory, and see the purpose behind the authors' confrontation with so-called 'rational thinking' as an attempt to re-ignite critical thinking, which is often lost amongst a myriad of scientific enterprises, evolutions and assumptions that modernity takes for granted.