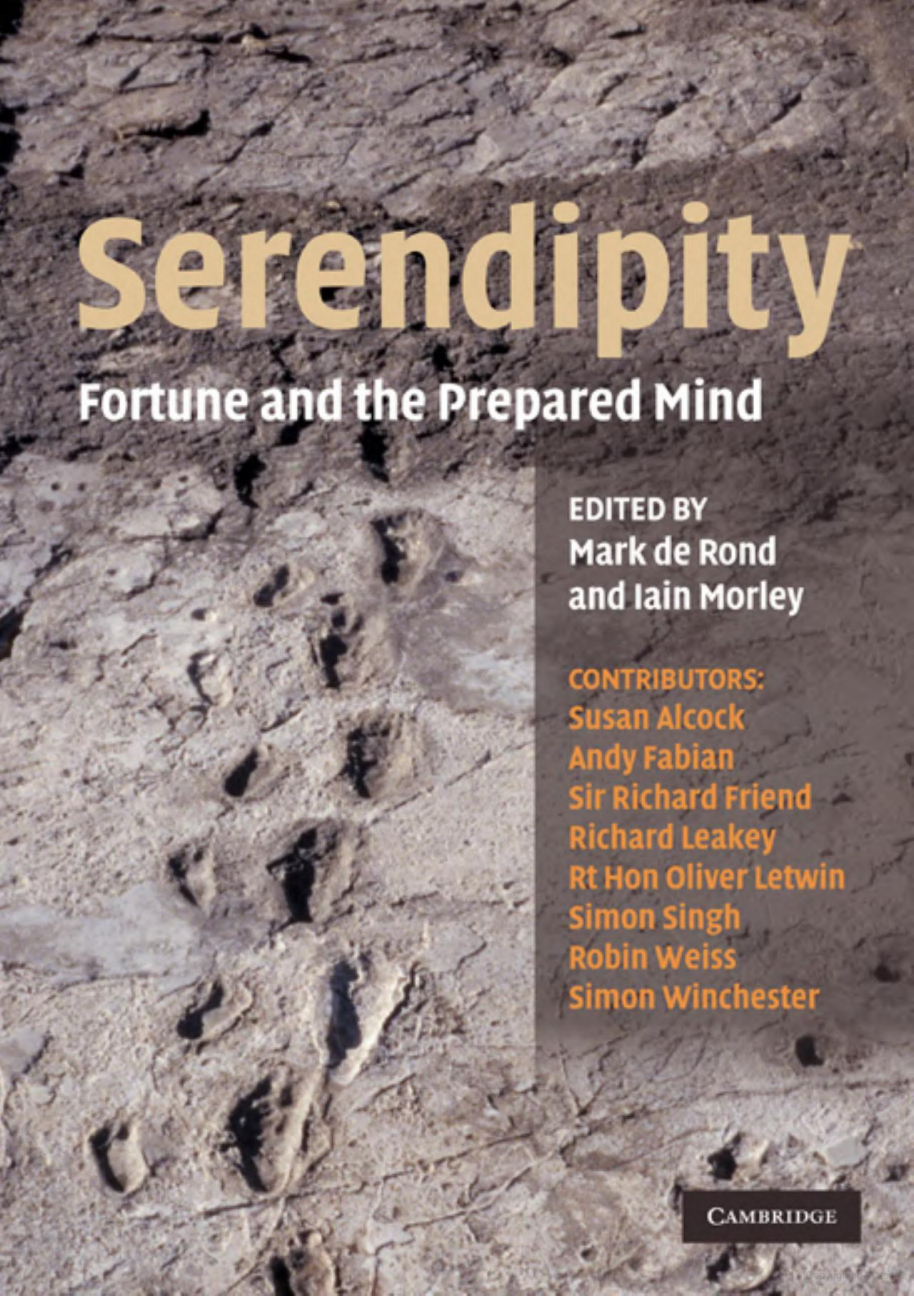
Serendipity
Fortune and the Prepared Mind
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SERENDIPITY

Fortune and the Prepared Mind

Edited by *Mark de Rond* and *Iain Morley*

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and Francis Crick in 1953. We wish colleagues 'good luck', not to insinuate that they are incapable but because we all realize that effort alone is hardly sufficient in making breakthrough discoveries (Rescher 1995). Our lack of omniscience, if nothing else, leaves plenty scope for luck.

What is curious is that using serendipity as synonymous with luck seems far removed from its etymology. Horace Walpole, in 1754, wrote of a critical discovery he had made, of an exciting old Arabic tale. One fine day, so goes the tale, three princes from Serendip (Ceylon, or modern-day Sri Lanka) were sent by their father on a prolonged journey to acquire empirical experience as part of their training. Misfortune befell the princes when happening upon a camel driver, who enquired of them about a camel he had lost. Though the princes had not seen the animal, they were nonetheless able to accurately describe it: it was blind in one eye, lacking a tooth, and lame. Furthermore, the camel was carrying butter on one side and honey on the other, and was being ridden by a pregnant woman. Their description was so accurate, in fact, that the camel owner accused the princes of having stolen his camel, and formally charged them in the emperor's court. However, in the presence of Emperor Behram, it became clear that the princes were entirely innocent, having merely pieced together various events. They explained that they thought the camel blind in the right eye because the grass had been cropped only on the left side of the road. They inferred that it was missing a tooth from the bits of chewed grass scattered across the road. Its footprints seemed to suggest that the animal was lame and dragging one foot. Also, finding ants on one side of the road and flies on the other, they concluded that the camel must have been carrying butter on the ants' side, and honey on the other. Finally, as for the presence of a pregnant woman, a combination of carnal desires on the part of the princes, and imprints of hands on the ground sufficed to bring about this final conclusion.

Clearly, the princes did far more than make chance observations. The tale is instructive precisely because the princes relied on their ability to recombine observations and deduce 'correct' – or meaningful – associations so as to generate a surprisingly effective (and, as it happens, entirely accurate) plot. To redefine serendipity as a consequence of recombining observations into unusual but meaningful associations suggests it is a close relative of creativity. To use an analogy, serendipity reflects the

ability to create a tune from a handful of musical scores from different genres and composers, torn into small bits by an enterprising toddler, and scattered randomly across the floor. Serendipity results not from reconstructing existing harmonies but from recombining small sequences of musical notes into something unusual, something altogether different. The ability to *imagine* such unusual but meaningful combinations lies at the heart of those drug discoveries credited almost exclusively to luck. After all, many a man floated in water before Archimedes, and apples fell from trees as long ago as the Garden of Eden.[4]

The ambiguity surrounding 'serendipity', in terms of etymology and practice, is reflected in eight beautifully crafted chapters. Their contributors are all masters of their respective arts, whose personal and professional experiences have given them unique perspectives on the diversity of forms and roles that serendipity can take.

Sue Alcock sets the concept of serendipity in the context of the human past, exploring the origin and subsequent 'coming of age' of the term itself – both of which are recent in the extreme when considered in light of our history. But is it really a recent concept? She goes on to explore, from the perspective of archaeology and classics (and classical archaeology in particular), the *stratigraphy* of the concept – the layers of its history and its meanings. The role of serendipity in archaeology, and in her own experiences as a practising archaeologist, forms the latter part of the chapter. Here we see the extent to which serendipity can be either embraced or denied in research, and all the combinations of planning, expertise and fortuitous circumstances that progress our exploration and understanding of the past.

The combination of preparedness and readiness to seize unexpected opportunity is a strong theme in Richard Leakey's contribution, as he touches upon the role of serendipity in his own, and in his parents', remarkable careers. But he goes on to focus also on the extent to which this concept can, or cannot, be applied to the discovered as well as the discoverer – the process of evolution, and human evolution in particular – and its role in the formation of the fossil record from which we draw our conclusions. He concludes by considering the extent to

[4] Walter Cannon, as quoted in Merton and Barber 2004, pp. 171–2

which we, as a species, will need to rely on our ability to sagaciously exploit our changing circumstances, and our adaptations, in the coming years, as changes in climate transform the world in which we have developed.

The relationships between humans and the natural world also form the core of Robin Weiss's contribution. The story of Alexander Fleming's discovery of penicillin is often cited as an example of serendipitous discovery, but the relationship between disease and exploitation of chance (albeit often lacking in sagacity) goes much further than this. Robin Weiss's work on infectious diseases, and in particular the HIV virus, provides a very particular perspective on the role of opportunism in human biology generally, and on microbiology specifically. Humans have in many cases constituted accidental hosts for infectious agents which, whilst not having 'prepared minds', have proven collectively highly adaptable to their new environment. But mutations in humans have also fortuitously led to resistance to some of these, and consequently been selected for too. He discusses how changes in microbes and parasites have taken advantage of human biology, and the evolution of human biology, and how our tracing of those changes can also tell us about the prehistory of our own species.

Simon Singh has written extensively on the topic of serendipity in science, and here gives an inspiring overview of the combination of chance events and the sagacity of certain individuals in the discovery of some of the most fundamental evidence for the nature and formation of the Universe. This includes the very origins of radio astronomy, as well as the detection of solar radio waves and the 'echo' from the Big Bang at the very beginning of the Universe (and taking in Velcro, Post-it notes and Viagra along the way). What these cases all have in common is the readiness of the researchers concerned to embrace the opportunity presented, often in the face of extreme frustration at the unexpected event.

Drawing upon his own work in the field of astronomy, Andy Fabian returns to the very concept of serendipity itself, and how the factors constituting serendipitous discoveries interact. He explores the relationship between preparedness, luck and aim in serendipitous discovery – and, in fact, the importance of the involvement of all three of those axes in truly novel discoveries. In discussing some of the most important discoveries in the field of astronomy, and the very way in which the field progresses,

he highlights the fact that the relationship between preparedness, aim and luck is not acknowledged as fully as it might advantageously be in the funding of research.

This critique forms a key element too of Richard Friend's essay, drawing upon his own and other critical discoveries in the realm of materials science and physics. He outlines a sequence of highly important discoveries (in the field of superconductivity in particular) which were made possible as a consequence of the right observations being made at the right time – when the necessary equipment was available – often in ways that could not have been anticipated. Not being constrained by 'received wisdom' or even 'understood laws' of physics is critical, and planning and method must be coupled with acting upon observation of unexpected phenomena. He presents a set of rules for the enthusiastic researcher who wishes to genuinely make new discoveries and progress in their field – not least of which is the importance of not being constrained by the structures of modern academic funding and refereeing, which in many respects fundamentally restrict such progress. He ends on the promising note that the prospects for serendipitous discovery, and its value, are as great now as they have ever been.

The role and management of unexpected events forms the basis of Oliver Letwin's contribution, which explores the very nature of liberal politics. Different (liberal or autocratic) modes of government revolve around the balance between government action and citizen reaction, and the effect of unanticipated outcomes on the effectiveness of policies with expected consequences. He argues that government action will typically only be effective through the *mediation* of uncertain citizen reaction, rather than the attempt to extinguish uncertainty. That mediation involves the exercise of judgement about the uncertain reaction and, perhaps, the ability to take advantage of unanticipated circumstances.

He argues that accepting the concept of uncertainty of reaction should change the way that politicians operate – a timely observation given the uncertain times most of us experience today in Britain as well as abroad. A liberal politician must create frameworks in which the reactions and decision-making of the population take place, the frameworks minimizing the unpredictability of those reactions, without being prescriptive. He

goes on to discuss the changing nature of these relationships between uncertainty and information in the modern world, and how this should affect the nature of political activity.

Being a professional writer would appear to require some particular traits – not least independence, spontaneity and a diligently creative approach to recognizing and developing subject matter from the world around. But Simon Winchester's engaging personal account of serendipitous events in his own career also highlights the core theme of the other chapters of this book – namely, the importance of an underlying ability to recognize opportunities when you see them, and, most importantly, to act upon them.

It still remains to offer some explanation of the recent burgeoning in popularity of the concept of serendipity. Perhaps part of this is due to what might be called a 'lottery mentality': the appeal of the tacit suggestion that 'great things' can be discovered or achieved by anyone, if in the right place at the right time. As will be seen from the following chapters, merely being in the right place at the right time on its own is not, in fact, enough to lead to truly serendipitous discovery. Perhaps there is an inherent appeal to the sense that no matter how much planning or preparation is carried out, true discovery relies on some mercurial extra ingredient. Whilst this might be the case, the chapters that follow illustrate that dispensing with preparation and planning will certainly not facilitate the course of serendipity.

But perhaps a less cynical explanation might be offered. There seems to be an inclination (certainly in the popular reporting of discoveries in science and the human past) to seek to identify 'magic moments': *the* moment or *the* event that furthered our understanding of the natural world, of social interactions, even of humanity itself. Thus, for example, we speak of *the* missing link between higher primates and humans, *the* moment when humans began to walk upright, or started to paint representations of the world around them, *the* turning point in history which led to the First World War – the list goes on. Of course, in reality these are very rarely single moments, but concatenations of circumstances and potentials – the potentials to respond to those circumstances – and these concatenations are actually rarely unique and even more rarely retrospectively identified.

1 The stratigraphy of serendipity

SUSAN E. ALCOCK

Serendipity is a baby. A baby! The time depth, the stratigraphy, of the word is, to a classicist, to an archaeologist, shallow in the extreme, its inception hardly a blink away in time. But if the stratigraphy is shallow, it is also clear. Serendipity was born, on the written page at least, 28 January 1754, coined by Horace Walpole in a letter addressed to a friend in Italy. What followed was a century or so of near neglect, then a period of slow adoption and diffusion, before the explosion into today's veritable carnival of usage. Serendipity is, as widely acknowledged, wildly fashionable today – ranking, in recent online polls of 'most popular' words, well above reliable standbys such as *Jesus*, or *money*. Numbers underline the point, with recorded references in LexisNexis (a professional information service) zooming from a total of 2 in the 1960s to over 13,000 in the 1990s (Merton 2004: 287), on Google from 600,000 in 2001 to over 11 million in 2008, and climbing. Such figures are not, admittedly, statistically valid in any sense; nevertheless, they mark serendipity's meteoric rise, its present rich level of exploitation.

What we appear to have, then, is a quite pleasingly demonstrated pattern of invention, gradual transmission and wide-scale adoption. But that is the last easy thing to be said about serendipity, a word that its own inventor left somewhat confused in definition, and that has subsequently undergone various transformations and, some would say, trivializations. The intention in this essay is to play with this new baby of a word, with the help and the perspectives of two disciplines deeply engaged with the past – Classics and Archaeology (and principally my own field of Classical Archaeology). This play will revolve around the notion of *stratigraphy*,

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taken here as the study of temporal layering, of chronological depth, of the study of change over time. The questions are, beyond what we've already said of its short happy life: what can stratigraphic analysis do to, and do for, this Darwin Lecture subject? Is there a stratigraphy of serendipity?

Classics and Archaeology, my two chosen babysitters, will come at these questions from two quite different directions. For Classics, the stratigraphic dimension is more straightforward; the Greeks and Romans, after all, pre-dated Horace Walpole by a considerable degree. But might there nonetheless be a prehistory to the, as yet uncoined, term? To put it another way, did serendipity exist before its formal eighteenth-century christening? For Archaeology, the examination will instead revolve around the manner in which serendipitous discovery has aided the discipline's basic mission of identifying and interpreting change over time (a circumstance, incidentally, that not all archaeologists acknowledge). Both discussions will springboard us, in conclusion, into thinking about possible strata yet to come, about the possible futures of serendipity.

Before proceeding, however, some definitions and clarifications are required, for serendipity comes in different flavours. At one end of the spectrum, as a kind of lowest common denominator, the word has come to mean chance, coincidence, sheer dumb luck. For example, at its most sweetly banal, take this posting from an online dating service, now 'immortalized' on *Wiktionary*: 'The most random serendipity brought the two of us together, and now, we are happily married! If I was just 15 seconds slower, I'd have never met her!' This is the more relaxed, some have said 'vague', version of serendipity (let us call it 'serendipity lite'), and it has launched a thousand dubious hair salons and day spas, tacky gift shops and more (Boyle, 'Serendipity', n.d.).

Horace Walpole himself, on 28 January 1754, seems to have had something more nuanced, something stricter and stronger, in mind. This emerges in Walpole's letter to Horace Mann, discussing an observation just made about a recently acquired painting.

> This discovery indeed is almost of that kind which I call *serendipity*, a very expressive word, which as I have nothing better to tell you, I shall endeavour to explain to you: you will understand it better by the

> derivation than by the definition. I once read a silly fairy tale, called *The Three Princes of Serendip*: as their highnesses travelled, they were always making discoveries, by accidents and sagacity, of things which they were not in quest of: for instance, one of them discovered that a mule blind of the right eye had travelled the same road lately, because the grass was eaten only on the left side, where it was worse than on the right – now do you understand *serendipity?* One of the most remarkable instances of this *accidental sagacity* (for you must observe that *no* discovery of a thing you *are* looking for comes under this description) was of my Lord Shaftsbury, who happening to dine at Lord Chancellor Clarendon's, found out the marriage of the Duke of York and Mrs. Hyde, by the respect with which her mother treated her at table.
>
> (quoted in Remer 1965: 6; emphasis in original)

Thus the launching of serendipity, a much-parsed passage. For many have remarked how Walpole here provides peculiarly obscure examples (from hungry mules to the noble Duke of York): examples that from the very beginning leave the word ambiguous. Just some of the questions left hanging: does the thing found have to be important, or result in significant consequences? Does the thing found have to be a 'good thing'? Might the thing found have been expected to be found? How much is due to luck and how much to the skill of the person looking? 'Now do you understand *serendipity?*', Walpole asks – and the answer ever since has been a slightly puzzled: 'sort of'.

For all that, there remains some consensus here for a stricter definition: 'serendipity strong' revolves around the finding of what you didn't know you were looking for; and it involves both accidents and sagacity. The latter is an important dimension to stress, given the emphasis of 'serendipity lite' on chance, luck, happenstance; sagacity has too often been lost in the shuffle of subsequent usage. The rest of this essay will engage with 'serendipity strong', and 'serendipity lite', though it will hunt particularly along the lines of the former. For the full story of serendipity's wonderful, twisty evolution, one can turn to a wonderful, twisty book, Robert Merton and Elinor Barber's *The Travels and Adventures of Serendipity*, written in the 1950s but put aside unpublished, appearing (unchanged) only in 2004 (Merton and Barber 2004). It is by no means serendipitous, I suspect, to find this concept chosen for a Darwin Lecture series a mere four years later.

So is there a hidden time depth to serendipity, a pre-Walpolean existence to the concept? This can, and should, be asked of multiple periods and cultures (a volume generally exploring the 'prehistory' of serendipity would make a wonderful companion piece to Merton and Barber). Here we can only quickly explore the situation vis-à-vis the Greeks and Romans. Whatever the precise derivation from Walpole's 'silly fairy tale, called *The Three Princes of Serendip*', 'serendipity' certainly isn't from the Greek, nor the Latin. But did the ancient classical civilizations of the Mediterranean possess and enjoy the concept anyway?

To be honest, the answer expected was yes, of course: if largely based on the classicist's errant assumption that the Greeks did everything first. Instead, my conclusion seems to be a rather unsatisfying 'sort of'. What we find in antiquity is closer to 'serendipity lite': to findings of chance, matters of luck. Both the Greeks and Romans had a pervasive, highly developed concept of fortune, both represented by female personifications (Tyche to the Greeks, Fortuna to the Romans). The interventions of these forces in human lives were recognized as frequent, for good or ill. More specifically, the Greeks had a term *hermaion*, for an unexpected piece of good luck, a godsend, a windfall – something not looked for, but given out of the blue. Such things were perceived as the gift of Hermes (hence *hermaion*): Hermes, the god of boundaries and of boundary crossing, the god of invention, of wit – the trickster god. If any deity is to oversee the slippery concept of serendipity, Hermes seems just about perfect.

In aid of this paper, I quizzed many classicists for examples of serendipitous behaviour, and was presented with a head-scratching range of 'how about this?': battles unexpectedly won, comets or eclipses perfectly timed to serve as omens, vital military dispatches lost, and more. All acceptable instances, as far as they go. But examples of the stricter, stronger version of serendipity – the finding of what you didn't know you were looking for, through both accidents and sagacity – those have proven more elusive.

The big apparent exception to this pattern, the original Eureka! moment, comes of course with Archimedes in his bath. Thanks to his position at the court of the king of Syracuse, Archimedes, the renowned third-century BC mathematician and inventor, was charged with

What I prefer to address, however, are more recent passages in the intersection of serendipity and archaeology, which is far from the happiest of relationships. Imagine yourself on a bus, dropping into conversation with an elderly gentleman who asks you what you do. You tell him that you are an archaeologist. To which he replies: 'That must be wonderful, for the only thing you have to be to succeed is lucky' (an encounter reported by Lewis Binford, an influential figure in the scientifically oriented, so-called 'New Archaeology' of the later twentieth century; Binford 1983: 19). Such awkward conversations have been experienced and handled with varying degrees of grace, by innumerable practitioners of the field. We know what people are thinking . . . of apparently random, fortunate finds, lucky strikes: Howard Carter peering in to see 'wonderful things' in King Tut-Ankh-Amun's tomb; Ötzi the Iceman, temporarily revealed in his bed of ice; the terracotta army of the First Emperor – found by a team of well diggers. Surely each an *hermaion*; surely archaeologists are the beloved of serendipity? Amusing to the outsider, the assumption nonetheless irks, and thus archaeologists tend to spurn this embrace. Consult the index of any of the major archaeological textbooks on the market and turn to 'S'. You will jump from sequence dating to Serpent Mound, sediments to settlements, semiotics to Shaft Graves, Sennacherib to Seti I. Serendipity is nowhere to be seen.

There is wrong on both sides here. First, archaeology is more than a matter of happy fortune; considering archaeologists no more than the hapless children of Providence is obviously a careless application of 'serendipity lite' in action. On the other hand, archaeology's rejection of serendipity is disingenuous, for the discipline is profoundly, and not irresponsibly, a serendipitous practice. As we explore, as we investigate, as we look for what we are looking for – inexorably, inevitably, we encounter and must deal with the unexpected. Sometimes this can be most unwelcome, as when discoveries are made (requiring substantial investment in documentation, conservation, publication) that lie far outside the original research questions and interests of an investigator or project. In such cases, serendipity can indeed be a jokester, and a pain. But it can also be transformative, drawing archaeologists into what Robert Merton, in his 1957 book *Social Theory and Social Structure*, referred to as the 'serendipity pattern': the experience of 'observing an unanticipated,

anomalous and strategic datum which becomes the occasion for developing a new theory or for extending an existing theory' (1957: 276; Maniscalco 1998).

Two sketches of this 'serendipity pattern' in action can be presented. Both delivered a swift kick to, and made a lasting impression upon, the field of archaeology. We can begin with the very measurement of time itself, and the power of radiocarbon dating. Radiocarbon, or Carbon-14, dating can offer absolute dates (within certain parameters) by measuring the rate of decay of Carbon-14 in appropriate archaeological samples. As pioneered by Willard Libby in the mid twentieth century, for the first time the global construction of completely independent, absolute chronologies appeared feasible: chronologies that could be matched and partnered with evidence from other sources, such as Egyptian historical records or dendrochronology (the science of tree ring dating). This, the first radiocarbon revolution, wowed the archaeological world, and Willard Libby won the 1960 Nobel Prize for Chemistry.

If the discovery seemed almost too good to be true, it was. It rapidly became clear that initial radiocarbon results were off-kilter, disagreeably disagreeing on dates reliably pinned down in other ways. Dates were coming in as too early, a fact for which variations in cosmic radiation were promptly blamed. Nothing daunted, methods to 'adjust' radiocarbon findings were evolved, with calibrations depending on an extensive tree ring sequence. The resulting 'second radiocarbon revolution' is where the notion of looking for one thing, only to find another, enters the fray. For as this 'tweaking' of curves and dates worked very nicely in sorting out chronologies for the eastern Mediterranean and Egypt, it simultaneously blew apart previous theories of connections between the Mediterranean and prehistoric Europe. This revolution rendered unfeasible theories of cultural diffusion in which all good flowed from the East (*ex oriente lux*), and destroyed conceptions of a world where it was thought the Mycenaeans, the Greeks (who else?), had built Stonehenge. The second radiocarbon revolution, by imposing a chronological 'fault line', a caesura, between these two zones, essentially forced an entirely new, and still evolving, conception of European prehistory (Renfrew 1979).

My second example is more personal, since it involves the kind of archaeology I chiefly practise. Regional survey, as this mode of