EVOLUTION, SCIENCE, RELIGION AND THE PARANORMAL

A RECONCILIATION

Chas Griffin

DarwinPlus!

Evolution, Science, Religion and the Paranormal

(A Reconciliation)

… and about time too.

Edition 9

Nullius in verba
(Take nobody's word for it)
Motto of the Royal Society

Test everything
Saint Paul in Thessalonians 5:21

Believe nothing, no matter where you read it, or who said it, no matter if I have said it, unless it agrees with your own reason and your own common sense
Buddha

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(should be more, but it seems I'm only allowed two)

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Why This Book?

Are you puzzled by why Big Science seems to ignore even apparently well-documented paranormal events?
And why so many Big Scientists are so scathing on the subject?
And why Big Religion is no help either?

And are you also puzzled by the Science/Religion schism, when neither side seems to be able to come up with completely convincing arguments for their case, and every 'discussion' ends up leaving you just as puzzled or uneasy as ever, but not sure why?

We can do better than that….

Things either happen or they do not happen.
If something does happen.. then there is a *cause* for it.
There is logic in there SOMEWHERE.

Let's find that logical path.

And once we've found it, who knows where it might lead……

Thanks to…

Mainly my wife, Anne, for listening to me droning on about this book for over twenty years. Such patience…

Also to John Sheffield, Doug Taylor, Dr James Le Fanu, Emily Swanson, Mark Stanton, Adam Russell, Dr Phil Sanders, Tom Ruffles of the *SPR*, the *ASPR*, Nick Cumber, Sonu Bhaskar, Ian Bradley, Malcolm Whyman, Professor Hilary Downes, Sarah Day, Guy Lyon Playfair, Tricia Bloomfield, Nevil Hutchinson, Stephen Mclaren, Scott Pack, Ruth Jeavons, Dr Steuard Jensen, and Mark Edmunds.. for their input, and help with reading drafts. Special thanks to Caitlin Russell for the graphics on pages 329 and 376, and for going along with my brutalist design for the cover, rather against her better judgement.
Thanks too to *Google* and *Wikipedia* for making the previously endless job of checking dates and spellings so much more enjoyable.
Also to all the good people who have made various diagrams and pictures available on the www. I acknowledge their skills and generosity here. I have spent hours trying to track down copyright holders but have not always succeeded, I'm afraid. I cannot afford to pay a fee, but shall be very glad to offer a personal thankyou, a credit, and a free copy of this ebook if you care to contact me.

Finally, but by no means least, thanks to Charles Darwin and Richard Dawkins, for getting me thinking, and to the authors of all the other inspiring and interesting books I read in the course of preparing this one.

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A caution:
I include a number of internet hyperlinks in this text, but I'm afraid I cannot guarantee that they will all be up and running when and if you choose to use them. Paper still has its place, I guess.

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How to get the best out of this book….

The text is in two formats. The normal one, like this, and passages in a smaller font, tinted in a restful shade of blue.

§ Like this.

The normal font sets out the main points I want to make. The smaller font passages mainly just add extra examples or matters arising, or an occasional joke. In other words, you don't need to read the smaller font in order to read the book.
I suggest that you read the normal passages straight through, and if you find the a particular theme of special interest, then it might be worth re-reading, adding the smaller font passages as you go.
Or you can pick and mix. Or decide against the whole thing and go to the seaside instead. I wish you a lovely day, whatever.

Oh.. and I hope you don't mind me addressing you directly as 'dear reader' from time to time. I find it helps me to concentrate.

CG
Saron
West Wales
May 2013

Part One

Problem? What problem?

This section discovers that there is a profound problem at the very foundation of what science accepts as a sound base to build upon.

Introduction

Facts do not cease to exist because they are ignored
Aldous Huxley

Are science and religion compatible? Yes, they are, despite all the slings and arrows the defenders of each respective faith throw at each other.

§ 'Faith'? Science is a 'faith'? As a method of investigation, no it is not. But there is one extremely powerful element in current science which most definitely *is* an act of faith, and no good has come of it; and I don't mean 'evolution'. Any ideas? If not, this book is definitely for you….

What makes me so confident? Because my only firm belief is in the power of logic, and logic leads straight to this conclusion. I can hear your gasp from here, but it's true.
So why has nobody else worked this out? I've no idea. It's not exactly rocket surgery. Perhaps thousands *have* worked it out but have not thought to mention it to the rest of us.
Or maybe we've just not been listening?
Or maybe it's because of a near-universal human problem I've 'discovered' in my own search for some logical understanding of What It's All About, and that somehow, as a result of this problem, and in far too many places, logic has got forgotten.

I will explain all as the book progresses, I hope, though it might be a bumpy journey for some: especially anyone with a firm conviction that they already have a firm grasp of 'the truth', thankyou very much. All I ask of you, dear reader, is that you put all convictions on hold for the duration, and simply work with the requirements of logic. No harm will come of this, I promise. In fact, I will be surprised if it does not untangle a couple of knots in your present philosophy. It has untangled a fair number for me.

As everybody's life is a journey of shifting and expanding horizons, I've chosen to write in terms of my own mental journey, which I suspect a lot of people will find familiar, at least in part. My journey followed a definite path, from a childhood interest in ghosts, to an understanding of why science didn't share my interest, and then on to an understanding of why science at one point even refused to acknowledge the existence of 'Mind' itself. Many other puzzles of a similar sort raised their heads. Then one day I realised what all these puzzles had in common, and what the underlying problem was. Step One.

Religion, meanwhile, had been a constant bewilderment to me. I'd spent 500 enforced hours in the school chapel and had come out none the wiser, and positively resentful. How could clapped-out myths and legends possibly have any relevance to anything?
But the more I read and the more I thought outside the box, particularly after completing Step One, the more I could tease out from beneath the surface of tired old 'religion'. Step Two.

Eventually, and much to my surprise, it became clear to me that both science and religion have much more in common than they realise. And not necessarily in a good way. Step Three.

After worrying at this for many months, I suddenly realised that it would take the briefest of intellectual steps to rationally reconnect religion with science. So why hadn't it already been done and been seen to have been be done? Again, I've no idea.
Actually.. after some twenty years of reading and thinking, and thinking again… I think I now *do* have an idea why. Step Four.

Now comes the tricky bit, of writing it all down in a way that makes my train of thought clear to you, dear reader, so you can judge for yourself. Step Five.

The final link in the chain, that of *logically* analysing all my points and suggestions, without dragging in any favourite old *beliefs* you've been taught to hang on to, is down to you. I wish you joy!

Please do check that my logic really is logic, but don't make assumptions about what hidden agenda I have. I don't have one, honestly. Logic is my only guide.
And please don't assume that if I say *x*, that I must therefore mean *y* and *z* as well. I don't. I mean only *x*. If I do mean *y* or *z* as well, I will say so.

§ I've done my best to check everything that is presented as fact, but clearly my claims can only be as correct as my sources of information. There will be sure to be some areas of debated 'fact'; but none serious, I believe. I think the logic will remain, whatever. You will be the judge.
It took literally years trying to work out how to present this book, and where to start it. I was originally going to write it as an academic investigation, but eventually rejected that route in favour of the 'personal journey'. After all, it had been a dramatic personal journey for me, and I thought it might be more interesting as a journey for you too.
The book is cross-disciplinary in nature, and I am aware of the fact that I sometimes deal with issues too briefly. Part of me aches to fill out the details, or deal with 'objections' and counter-objections, but space is limited, and some sort of shape has to be maintained.

I've also done my best to reassure the careful and critical reader that I will be returning to an unfinished point later in the book, by adding 'More later' here and there. 'Far too often' many will say. Sorry… but the intention is to reassure, not irritate.

If you know for a fact that some of my own quoted 'facts' are *absolutely* wrong, please do contact me via my website (www.thirdleafbooks.co.uk) and give me adequate solid references so I can check your versions against mine. Thanks very much.

I also make occasional judgements concerning historical movements and events, which I believe to be tenable. But if I am *definitely* wrong in a particular judgement, again, I would love to hear from you. But only if '*definitely* wrong', please!

And if you can think of a way I can make a point more clearly, then that would be valuable to me as well. Thanks.

Much as I would like to, I'm afraid pressure of time won't allow me to indulge in debate about anything in the book. I've said all I have to say within the present pages. You will make your own judgement on the issues, hopefully after carefully re-reading them to be sure you really understand what I am saying, and then discussing them at great length with many friends.

Chapter 1

Spooks or No Spooks?

… that is the question.

There is no expedient to which a man will not resort to avoid the real labour of thinking
Sir Joshua Reynolds

Even the longest journey, the Chinese say, begins with the first step.

So maybe it would make sense to start this journey with my first glimmering of intellectual frustration, although I was too young at the time to think in such terms.
When I was thirteen or so, Dad used to read *The Daily Telegraph* and on Sunday, *The Observer*. All very boring. But my Auntie Ida, who lived over the river, in Toxteth, used to buy the much more interesting *Tit-Bits* and *Reveille*. Every now and then, these chatty little mags would find space among the pin-up girls and horoscopes for stories like *'Lady in Red Crinoline Startles Courting Couple'*, or *'Plates Flew Round the Room, Says Vicar'*. I read them in the same sense that I would read anything else, and was vaguely puzzled by two things: firstly, why hadn't Science (I was a great fan of science, as was Dad) put a stop to all this nonsense, if it *was* nonsense? And secondly… surely it must *be* nonsense, mustn't it?
After all, a visitation from some sort of parallel reality, crinolined or not, is a very big deal, wouldn't you say, especially to science? And how can plates fly round a room of their own volition, as witnessed by a respectable vicar? Even aged thirteen or so, I knew Big Stuff when I saw it. So why did *The Observer* not send in a hit squad of top investigators? 'All nonsense', presumably.

§ Throughout this book you will find some unusual uses of initial capitals. For example, I will sometimes refer to 'science' and at other times to 'Science'. I use the former when referring to 'science' as a discipline, as in: '… Man's pursuit of science has been a story of gradual accumulation, punctuated by moments of insight…'. I use the latter when referring to the broad consensus of opinion of the scientific community, as in: ' …we are assured by Science that there is no purpose in or to the universe..' Clearly, this is not meant to mean that every single scientist holds this view or any other that I make in generality.
I use 'religion' and 'Religion' similarly.
Occasionally I will capitalise other words and phrases in order to make similar distinctions. I hope these uses aid clarity, as they are intended to.
Once in a while I'm not sure whether to use a capital or not. Nothing's easy, is it?
If in doubt, I don't capitalise. I hope nothing is lost by this.

The trouble with it all being nonsense was twofold for me. First of all, I knew that ghosts and poltergeists had been known and reported from every society I'd ever heard of, and for hundreds of years. Were *all* these people fools or liars?
And more importantly, I knew two people, both perfectly sensible adults, who had bought a pub in Shropshire, who told me about a ghost they regularly saw passing outside the kitchen window and then walking through a wall and disappearing. They had tried several times to speak to this hunched-up old lady in black but she paid them no attention, and continued to walk into and apparently *through* the same solid brick wall as if it simply wasn't there. These were sane and rational people, and good observers (he had been a Battle of Britain pilot). And no, they did not 'drink'. And no, they were not teasing me. Kids are good at spotting that sort of thing. Well I was, anyway.

Back home, I mentioned this old lady ghost to a couple of friends, who, predictably, took the mickey. At school I made a tangential mention of it to our biology teacher, who was more directly scathing.
Why was everyone so negative, I wondered? And so *emotionally* abusive? Why did nobody seem to think, as I did, that this was a profound mystery that needed looking into in a spirit of calm and proper scientific enquiry?
I read a couple of books from the library and became convinced that there really was a great mystery here. There were dozens of reports, well-attested by reliable people, of strange sightings in numerous English castles, pubs and airfields. Hampton Court and the Drury Lane theatre are consistently reported as being haunted. So why did there seem to be some sort of global conspiracy of denial? After all, it could not be a question of 'belief', even though the common question thrown at me was 'You don't believe in ghosts, do you?' Surely, it was a matter of *fact*, one way or the other? Either ghosts *did* exist, or they did *not*. Belief didn't come into it. So why the wall of silence; and why the derision?

Adolescence soon posed other and more immediate problems for me

§ Girls and exams, since you ask; edited details upon application.

and I let the questions fade into the background. It was clear to me that the science teachers and the school chaplains had nothing to say to each other, and seemed not to be interested in debating their differences for the benefit of the students, either. Each party was happily marooned on its own little island. I only once dared to raise my own perplexity at this and was repaid with scorn by the science teacher, and waffle by the priest. I gave up. Sarcasm and dogma had beaten me.

After turning down an offer to train as a nuclear engineer, I squeaked into university and squeaked out again with a modest degree in Slavonic Studies. The course did not greatly engage me, and I was always more than a little bothered by 'What is the point of all this? Why do I or any other sane person need to study the philology of Proto-Indo-European, as possibly spoken several centuries BCE, or even the relatively spanking new Old Church Slavonic?'

§ For example (*diagram thanks to ?*):

Declension of *wĺkʷos	Singular	Dual	Plural
Nominative	*wĺkʷos	*wĺkʷoh₁	*wĺkʷoes
Vocative	*wĺkʷe	*wĺkʷoh₁	*wĺkʷoes
Accusative	*wĺkʷom	*wĺkʷoh₁	*wĺkʷons
Instrumental	*wĺkʷoh₁	?	*wĺkʷōys
Dative	*wĺkʷoey	?	*wĺkʷo(y)mos
Ablative	*wĺkʷead	?	*wĺkʷo(y)mos
Genitive	*wĺkʷosyo	?	*wĺkʷooHom
Locative	*wĺkʷey	?	*wĺkʷoysu

You will note that in this fully-inflected declension of the Proto-Indo-European word for 'wolf', that the singular instrumental case is identical to the dual vocative. Fun, eh?
Actually, something that has always bothered me about language is how such complications as declensions and conjugations ever arose in the first place. It seems to go completely against the run of how people generally treat language: ie, to constantly seek to simplify it. For example, English has gradually shaken off almost all its old conjugations like 'thou goest' and so on, along with vocatives and instrumentals and so forth. So how did it ever come about that the more primitive the society the more complex the language? Any ideas? More on language as we progress. It's very relevant to the book.
Just as a matter of interest, the instrumental case is used to express 'by means of', as in 'He severed his opponent's head 'by means of' a wolf'. Neat.
The vocative is used when addressing an entity directly, as in this dual case of 'O both wolves…'
Some cultures and languages are on a hiding to nothing it seems to me.

But I did enjoy my time at university, and met my future wife there, so I had no complaints, apart from a vague feeling that there must be something else to life than learning more and more about less and less, which is what academia seemed to be about.

Significantly, to me at least, the most powerful memories I have of those three years are of a couple of paranormal experiences.

Should we call 'hypnosis' paranormal? I do, but if you don't, that's OK. It doesn't matter.

§ *Paranormal*: Beyond the range of normal experience or current scientific explanation.

The facts are 1) that hypnosis is known to work, but 2) nobody knows how, or perhaps more interestingly, 'why' (which is why I classify it as 'paranormal').

§ 'How?' and 'Why?'...the great divide. Science claims that it is not concerned with the 'Why?' of things, merely the 'How?'. This is because current Science thinks there is no 'Why?' to be answered. It's all chance. More later.

I had joined the university's Society for Psychical Research and went along to an open demonstration of hypnosis one evening, conducted by a man whose name I've unfortunately forgotten. He was of mature years, and was a practising surgeon, who used hypnosis as part of his patient recovery system. He told his audience of a hundred or so of how he had hypnotically removed all the pain from an airman who had lost a leg crash-landing a damaged Lancaster bomber during the war. The next time he visited the patient he asked how the leg was feeling. 'Fine,' said the airman, and to prove his point he punched his stump. This started the bleeding again. 'The "moral" of this', the surgeon said 'is that I now never take away *all* the pain. Just 'enough'.'
This intrigued me very powerfully: *that the Mind, and somebody else's Mind at that, could control pain partially or absolutely, at* ***will****…*

§ More on Mind and Matter in Chapters 20 and 23.

The other powerful memory is of a couple of months I spent with a few friends exploring the Ouija phenomenon, *(Picture thanks to Wikipedia)*

until it scared me witless and I (a firm sceptic of both religion and, until very recently, the Ouija phenomenon) spent the night with my postcard of El Greco's *Crucifixion* on my bedside chair, close to my head, too frightened to go to sleep.

§ More on the Ouija business in Chapter 18.

I had no idea what to do with my life and drifted into the family trade of teaching, in a comprehensive school in the Black Country. You didn't need a teaching qualification in those days, so most of my time was spent learning how to teach. I thoroughly enjoyed it, and remember being impressed with the openness of the kids' minds. They asked questions, which was refreshing. They weren't all that interested in Old Church Slavonic either, which was also refreshing.

I joined the national Society for Psychical Research, following my experiences at university, and eventually carried out a mass testing of the whole school for latent clairvoyance, using a pack of Zener cards, in conjunction with Professor Beloff of Edinburgh University.

§ A pack of Zener cards contains five each of the following cards:

The odds on guessing a particular symbol correctly are a neat one in five. You can have a lot of fun with a home-made pack. *(Picture thanks to Murderati)*

The results were... inconclusive, as they always seemed to be in this area of investigation. Nonetheless, there were occasional flickers that continued to intrigue me and lead me on. My personal Ouija experiences had convinced me absolutely that there were secrets to be discovered here, but yet again, I was puzzled by the lack of interest most people showed in such things. Could nobody see the potential that lurked behind them? The implications?

Then came the 1970's, domesticity, and parenthood, and little time for investigating life's mysteries. I still found religion incomprehensible, especially as each sect seemed to hate its rivals even more than other religions, or indeed outright atheists.

§ This infighting was a powerful trait amongst early immigrants to America, where the Congregationalist majority tried to repress the Baptist, Anglican, and Quaker minorities. Four Quakers were actually executed. It took an English parliament's *Act of Tolerance* to sort it all out. So much for fleeing to freedom from the tyrannous domination of The Church.

Two major points bothered me:
Why would anyone want to impose his own religious views upon somebody else? I'm thinking here of the Crusades, the Inquisitions, and the religious wars of the sixteenth and seventeenth century. In recent years we have seen other examples, of course.
And why was it that, despite all the intolerance and slaughter that Religion has brought to the world, people still took it seriously, in their *billions*?

§ Here meaning 'Big Religion': ie, organised, political, and monolithic.

What was going on here? Every society I'd ever heard of had some sort of transcendental or paranormal element to it, and many of these societies were spectacular achievers in other fields. The Indians, for example, developed arithmetic and maths while we in the West were still developing the pointed stick. The Egyptians built impossibly complex granite structures inside the pyramids, apparently using *copper* tools even earlier than that. And both of these societies were very heavily religious. And I knew that Isaac Newton, often called the greatest scientist of all time, was a religious obsessive.
All this was a profound puzzle that I knew I needed to address for my own peace of mind one day. If rubbish, *why* rubbish? If not rubbish, *why* not?

I gained some insight on these matters by getting involved in politics and joining the Labour Party in a safe Conservative constituency. It gradually dawned upon me that a number of the people I was mixing with were of a sectarian persuasion very like people in religious groups. The traditional Labourites and the Militant Tendency were at daggers drawn; the International Socialists couldn't get on with the International Marxist Group; and everybody hated the soppy liberal wing. Some people definitely put more effort into doing down another sect within their own party than they ever did in elections which hoped to reduce the Tory majority from 30,000 to something a little more manageable.
This insight, of the tendency towards splitting, will surface again later, when I look at it more closely, and even give it a fancy name because it doesn't seem to already have one.

My other problem, concerning the enduring popularity of religion, remained as a complete mystery. The only conclusion I could come to was that no, all these clever people and societies could not reasonably be written off as *all* fools or knaves. To do this would be, in my view, an unreasonable arrogance. There must be *something* afoot. Something they all shared in common deep down somewhere. But what? And how to

discover it, and disentangle it from all the sectarian baggage that was obscuring the fundamental commonality so effectively?
Or maybe there actually was no commonality; just random daydreams and mental confections? Sugar pies in the skies? I needed to know.

That was as far as I got in the 1970's. The 1980's saw our family change our lives radically, moving from safe and enjoyable circumstances in a leafy Nottingham suburb, to trying to set up and run an organic smallholding from scratch, in West Wales. The idea was to put our Green money where our mouth was, and to become reasonably self-sufficient, while growing garlic as a cash crop to pay for things like phone bills and petrol.

This level of change was both exhilarating and stressful. The exhilaration was fun, but the stress eventually caught up with me and I was hauled up to bed: 'We've run every test we can think of and you haven't got brucellosis, Weil's disease, liver failure or a bad heart: it's got to be M.E.', the doctor said, just three years into our new life. It was devastating. For the whole of the winter and following spring I slept for most of the day, had lurid dreams, stank of vinegar, and was as weak as.. well, as weak as somebody completely wrecked by M.E.

§ *M.E.*: 'Myalgic Encephalitis'. Also myalgic encephalopathy, post-viral fatigue syndrome, Royal Free disease, Tapanui flu, yuppie flu and a dozen other names, often generalised as Chronic Fatigue Syndrome. Everything goes into hibernation: intellect, emotions, will, and, above all, the body. Some people have a terrible and painful time of it. I was just totally exhausted in all respects.

I obviously couldn't work, but the land still needed rotavating; crops still needed sowing and planting; lambs still needed birthing; and the cow still needed milking twice a day. And of course, our two children needed tending to. Anne worked miracles, every day for six months.

I was no good on the farm, but surely there must be something I could do?
Well... on a good day, I could read…

Chapter 2

Darwin's 'Creator'

It may be conceit, but I believe the subject may interest the public
Charles Darwin
In a letter to his publisher, asking if he would be interested in publishing
On the Origin of Species.

I began by reading a bit of science fiction, something I'd previously enjoyed, but which now, I discovered, did not satisfy. I tried other fiction but couldn't get on with that, either. It somehow felt like time-wasting. My old interests in the paranormal re-surfaced, and I read a couple of pop ghost books, but they were too vague and sensational, and contained photographs that were all too easily fakeable or just plain risible; and none of them contained any sensible ideas on what ghosts really were, or how they came to be. I needed something I could get my teeth into, written by someone I could trust and respect.
One day a friend lent me *Mysteries* by Colin Wilson. I'd read CW's philosophical *The Outsider*, and knew him for a thoughtful and responsible writer.

§ If you are not yet persuaded that there are some very strange things going on in the world that science never seems to have got round to properly explaining, I recommend reading something by CW (try *Mysteries* and *Poltergeist* for starters), and by Lyall Watson (*Supernature*; *Supernature II*; *Lifetide*; *The Romeo Error*) and then see if you still feel that way. There are a lot of similar books, many of which are unreliably sensationalist. I commend Wilson and Watson as they are both trained scientifically (in biology), and can distinguish evidence from fantasy and rumour.

What this book did was to wake me up again to the fact that our universe really is a most peculiar place, which, despite the efforts of people like my old biology teacher to reduce everything to mindless chemicals is actually packed full of baffling oddities and anomalies.

§ Were you ever told by a science teacher, usually with some glee, that you are nothing but 20 kilos of carbonated water, or whatever, and enough iron to make a nail? And did you, like me, find yourself thinking…'Hmm.. something missing here, surely… How can chemicals think, for example? And why is this teacher so pleased to be telling his students that they are essentially worthless?'
Colin Wilson, meanwhile, documents cases of dowsing from maps with pendulums, lucid dreaming, psychokinesis (moving objects by mind-power) and levitation, among many other strangenesses. How can a bunch of chemicals do any of these things? We'll be coming back to some of these issues later.

In other words, the problem I already had with Science ignoring ghosts and Ouija board phenomena had suddenly burgeoned into a huge field of anomalous occurrences, including near-death experiences (NDE's), out of body experiences (OOBE's), premonitions and clairvoyance, many of which had been well-attested by people who would usually be regarded as good witnesses: policemen; teachers; clergy; pilots; doctors; university professors, even. I broadened my reading to include the books of Charles Fort and other writings, particularly in the realm of proper psychical research.

§ *The Book of the Damned* and *Lo!*. The 'damned' in the title refers to strange reports and evidence that Science ignores or belittles. Also *The Reach of the Mind* by Professor JB Rhine and *The Infinite Hive* by Rosalind Heywood.

The more I read, the more I became convinced that there was something awry in the way Science viewed reality, as it seemed to be ducking or avoiding not just one or two anomalous issues, but a whole mountain of them. Why? Presumably there must be some sort of absolute and logical reason for this. What could this reason possibly be?
Also, I'd come across a quote by William James, the psychologist, to the effect that you only need one white crow to disprove the theory that all crows are black. Thus, a single clear-cut anomaly would blow a fatal hole in any 'absolute' theory at all, whatever it might be.
Could I find this white crow?

It seemed I needed to channel my reading down two paths: 'the philosophy of science', which would probably also include the history of the philosophies of science; and some more reading in the realms of psychical research, to see if I could find just one absolutely clear-cut, well-attested, and unfakeable anomaly. Just one would suffice. Then, once I had discovered by what absolute principle Science was dead set against such anomalies, I could hold up my white crow, and say 'But what about this…?'
It might be of no interest to anybody else, especially not biology teachers or chaplains on their respective desert islands, but it certainly would be to me.
Where to start?

§ 'How do you meet an elephant?' 'One bit at a time.'

I thought that I might as well make a start on the history with what was perhaps the most important scientific book ever published: *On the Origin of Species* by Charles Darwin.

I found a Thinker's Library edition in a charity shop and to my great surprise I found it to be a very readable work, and not the great wodge of Victorian stodge I was expecting.

§ The Thinker's Library published some 140 academic and factual books for the man in the street in the 1930's and '40's. The books had a strong atheistic and 'rationalist' bias, in accord with the prevailing ethos of the period. More on this mood in Chapter 27.

In measured sentences, backed by mountains of evidence, Darwin slowly spelled out his sensational theory: that the world's species of plants and animals were *not* created as fixed and 'perfect' entities as had been previously and generally accepted as dogmatic truth, as propagated by The Church.
In fact, Darwin showed, species slowly changed over time, morphing from one form to another, as climates and conditions varied. Thus, finches from one Galapagos Island differed quite significantly in their beak shape from finches from another nearby Island, depending upon what food sources were available. Those birds with the most suitable beaks survived to breed others like themselves; the others didn't. Eventually each island sported its own finch variation.

This in itself was not necessarily earth-shattering news, as people had always known that dogs and pigeons could be bred to emphasise specific shapes and capacities, but Darwin now went a step further.
Up till now dogs had always been dogs: no matter how much you bred them, they remained the same *species*, meaning 'capable of successful breeding among themselves'.

§ Although some might need stepladders from time to time

However, in nature, and over many millennia, Darwin suggested that species themselves could variegate according to the process of 'natural selection', as the Galapagos finches had done, right up to the point when one localised group of creatures could no longer breed with their previous peers, and thus became what we call a new species.

§ Darwin eventually adopted the phrase 'survival of the fittest' as suggested by Herbert Spencer, the philosopher. This phrase has caused great trouble, as it has been frequently mistaken to mean 'survival of the most brutal' rather than 'most appropriate', as Darwin intended it. More later.

Thus, left to nature, some dogs would eventually become, well… a new species of 'not quite dogs'.

§ All dogs, including Australian dingoes, are descended from wild wolves, and share some 99% of their genes. The dingoes on Fraser Island, off Queensland, are isolated from other dogs. Thus, Darwin would predict, one day they might become a new species. But don't hold your breath; these things take time, and lots of it.

The world-changing book ended with one of the best finales of all time:

'There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved.'

Stanley Kubrick must surely have had that sentence somewhere in mind when he filmed *2001: A Space Odyssey*.
What struck me most about this sentence, apart from its magnificent sweep and cadences, was the mention of 'the Creator'. I'd always vaguely thought that Darwin was an atheist. How had I come to think that? And what did that 'Creator' signify?
Whatever, Darwin made such a strong case for evolution, that surely no reasonable person could gainsay it. But of course, lots of people did gainsay it, led vociferously by The Church who, up till now, had held a monopoly on theories of cosmology and creation.

§ I here mean the Church of England, although the Catholic Church had trouble with Evolution, too. Lots of people still gainsay it:

> According to a CBS News poll last month, 51 percent of Americans reject the theory of evolution, saying that God created humans in their present form. And reflecting a longstanding sentiment, 38 percent of Americans believe that creationism should be taught instead of evolution, according to an August poll by the Pew Research Center in Washington.

…according to *The New York Times* in 2005.

The Church's view was that proposed by Archbishop Us(s)her of Armagh who had in the seventeenth century done a bit of back-calculating through all the generations of 'begetting' in the *Old Testament*, and had come up with the declaration that the world was created by God, about 6,000 years ago, during the six days beginning with the evening of Oct 22 4004 BCE. This date was anonymously inserted into some *Authorised Versions* of the *Bible* in 1701, and gradually became a dogmatic truth for many.

§ Were the Archbishop's declaration to be accurate, I find myself wondering what God was doing all the previous morning. As a piece of logic this heroic calculation is so riddled with holes as to be unworthy of serious consideration (especially as the good

bishop also calculated the end of the world to be upcoming in October 1996). However, dogma has never had much in common with logic. Hence this book.
The Archbishop also calculated that Adam and Eve were driven from Paradise on Monday 10 November 4004 BCE, and that the ark touched down on Mount Ararat on 5 May 2348 BCE 'on a Wednesday'.

The geologist Charles Lyell and Darwin had showed, beyond any *reasonable* doubt (as opposed to *dogmatic* rejection) that fossilised sea shells, such as those currently embedded in the rocks of Mount Everest, and thus several miles up in the sky, and the endless trillions of animal skeletons that make up the white cliffs of Dover, not to mention all the other-worldly-looking remnants of extinct and fossilised dinosaurs that had begun popping up all over the place, suggested overpoweringly that species had *not* been created perfect and changeless, once and for all, one October a few brief centuries back, (just shortly before the Egyptians started to make their mark), but instead had arisen via the track of 'natural selection', according to the climate and availability of food in a given region at a given time.

§ It seems that fossilised seashells are found embedded in Mount Everest as a result of the enormous geological deformations brought about by India crashing, very slowly, into Tibet, thus forcing up the Himalayas, sedimentary fossils and all, as a crumple zone.
§ 'Evolution' had arrived, and 'fluidity' had entered the world of biology, just as Copernicus and Galileo had introduced it to astronomy three hundred years before. More on fluidity later.

Well, *I* was impressed by Darwin's simple reasoning and evidence. How could anyone not be? It was simply more evidential and *reasonable* than the Creationist view that The Church seemed to be set on defending. It explained more things, more coherently, and more rationally.

§ More on Creationism later. In the meantime, it seemed to me that most Creationists are not idiots, and they know perfectly well that there are real problems with taking every single word of the *Bible* absolutely literally, not least such clear-cut contradictions as 'an eye for an eye' and 'turn the other cheek'. Their problem is that they don't know how else to protest against what they see as the absolute and literally ungodly power that Science has over society.

My own questions here, and perhaps yours, are:

- On the one hand, Why *has* Science become as 'ungodly' as it clearly has?

- And on the other hand, Why is 'evolution' thought of as being 'ungodly' by Creationists, while Darwin himself refers to 'the Creator'?

But another problem was troubling me: if Darwin was happy to refer to 'the Creator', which is about as paranormal an entity as you can get, why had my biology teacher, a great fan of Darwin, been so scathingly anti-paranormal? The next step, I thought, would be to read a bit more about Darwin and his times, and then see what modern scientists, the variegated descendants of Darwin, so to speak, had to say. I kept my eye open, and one day found a recent Penguin re-print of *Origins* containing what looked to be an interesting modern Introduction. What a treasure!

I started with the new Introduction, but was pulled up sharp on page 13, where the author claimed that Darwin was offering 'a purely material' view of Nature. But didn't Darwin refer to 'the Creator' more than once in *Origins*, even in that famous final sentence? How can you square 'the Creator' with 'purely material'?

§ If I understood 'purely material' correctly. To me, 'materialistic' meant being greedy for worldly goods, but that didn't seem adequate, and a 'purely material' explanation of something must mean 'an explanation in terms of worldly things', and not other-worldly things like 'the Creator', presumably. This didn't seem like a good enough definition though. I would need to chase this up at some point. I eventually did, and was amazed at what it led to. More later.

I turned to the final sentence, and read:

> 'There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved.'

I guess you will have spotted what is missing. Where has 'the Creator' gone? And what of that odd phrase 'breathed into'. What did the breathing? Only living entities 'breathe'. I already knew that breathing onto things, to cure or create, had a widely used religious (ie, non-material) connotation. So what Darwin is offering here is an unnamed paranormal being of some sort 'breathing' life and 'powers' into 'forms'. Odd…

I found on page 49 a note which explained: this edition was not the final thoughts of Darwin (ie, the sixth edition, of 1872) but a reprint of the *first* edition of 1859.

My immediate response was 'Why?' Why would anyone reprint an author's first thoughts and not his final ones? Had anybody done this with Einstein or Galileo?
The note went on to add that this first edition was 'in many ways a more clear-cut and forceful version… than the later editions'.
But if I'd written a world-altering book which ran to six editions and sold by the multiple millions, I would be quite sure that I would want my final thoughts reprinted and not my first. I was puzzled.

The Introduction went on to claim that Darwin watered down his theories in later editions after criticisms by fellow scientists Kelvin and Jenkin. But, the author explained, these criticisms were to do with estimated eras of geological time, and a point of genetics. They were not to do with 'the Creator'. Therefore, presumably, the addition of 'the Creator' to the final sentence of later editions was Darwin's own idea, and nothing to do with 'watering-down', or surely the writer of the Introduction would have said so?

And it was the 'Creator-or-ape' business that *really* mattered (although not spelled out by Darwin in *Origins*) and which caused all the ructions with The Church and society at large, not details of geology or genetics.

§ You may wish to raise a number of points here regarding Darwin's views and motives, and there are already plenty of interesting books on this subject, but my personal concerns in this book are:

- What did Darwin actually say in *Origins*?
- What have people claimed Darwin said in *Origins*?
- (And, ultimately…) Why do people claim what they claim?

As a matter of interest, in his television series called *Twelve Books that Changed the World*, Lord Bragg quoted that famous final sentence from *Origins*. But again, it was a quote from the first (Creatorless) and not the definitive final edition. Why?
The good lord also claimed that 'We are an accidental event' and 'Darwin thought that life came about naturally'. Given that the meaning of the word 'naturally' in the second quote is a little obscure, it is quite apparent that Lord B has also overlooked Darwin's 'Creator'. How could such a respected polymath have missed this? Curiouser and curiouser.

It is difficult for us, 150 years on, to appreciate the violence of the storm that *Origins* caused. The Church, with its power over people's minds, especially in the fields of cosmology and ontology found the notion of Evolution, and its implications for the origins of Man himself, profoundly threatening, and responded with smug derision. Scientists and 'rationalists' thundered back.

§ *Ontology*: the study of 'being' and what it means.
§ *Rationalist*: originally meaning 'one who pursues reason'. Its meaning has changed, however. More later.

Opinions became polarised: subtlety became reduced to slogans; shouting replaced discussion; and then reason got forgotten, and the real issue, along with its subtle implications, became subsumed in a welter of aggravation and triumphalism.

§ More on this very important matter later.

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This was all very interesting, and I would have loved to have been able to carry on with the research, but Real Life intervened once more, and I was unable to continue with my efforts, being either too ill or too busy with necessary things, like trying to earn a living while firing on only two cylinders..

§ Which was rather more than our poor old tractor, a magnificent Little Grey Fergie, one of the greatest design icons of all time.. but my paltry skills and lack of time and energy meant that Fergie didn't like doing the one essential thing a man can ask of his workhorse: starting.

The horribly wet spring of 1986 had been nigh-on disastrous for us, as it wiped out every one of the 60,000 garlic plants which were to be the basis of our cash crop, to pay our Council Tax and so forth. It was a low point.
But there's always sunshine after rain, as I'm sure someone must have said, and to cut a long and rather dreary story short… after a couple of dramatic and anxious years of boom and bust, when I was either full of beans (in the summer) or completely prostrate (in the winter) my health began to stabilise. By 1990 the M.E. had settled down into a dull wash, leaving me with about 50-60% of my previous capacities, dropping to 30% on bad days.

In those intervening years, I didn't give up completely on the research. (How could I? It was all too intriguing…) and took to haunting local second-hand bookshops when we took a rare trip out, usually to sell a few veg or to visit the dentist. On our level of income, and with two kids to raise, new books were out of the question, so Fred's and Leo's emporia were invaluable, as were the dozen or so charity shops in Carmarthen and Newcastle Emlyn. I picked up scores of suitable books and even had to (slowly!) put up a couple of extra shelves.

From the new books I learned that Darwin was very aware, right from the start, that his book was a bombshell. He was so nervous of the trouble he knew it would cause that he sat on his findings for a full twenty years before publishing,

§ Given this, you would imagine that he would have mentioned 'the Creator' more times rather than fewer in his first edition, wouldn't you?.. to smooth the path a little, rather than to antagonise? But no… he started with seven mentions (of which two were definitely positive) and eventually revised this up to nine (three positive mentions), including that famous last sentence, years after all the furore had subsided.

and, even then, he published only when his hand was forced by receiving a letter from the orient from an Alfred Russel Wallace, another biologist who had come to very similar conclusions to Darwin.
Charles Darwin became a household name, while Alfred Wallace sank into near-obscurity.

§ But I'll be returning to the excellent Mr Wallace later.

So.. where was I now? Quite shocked; not just by the contradiction between the judgement of Darwin being 'purely material' while the author himself refers positively to 'the Creator' twice in the first edition; but also by the free-hanging 'breather' in the last sentence; and also by what seemed to me to be the strange practice of putting out a non-representative version of Darwin's final views.
Why? Could it be that someone (presumably a modern scientist) was somehow embarrassed by Darwin The Hero of Evolution admitting to some sort of paranormal necessity, and thought that the first edition was thus slightly more 'suitable' than the last? Surely not…

§ It is perfectly true that CD did have problems with 'religion', meaning by this 'Christianity as believed and practised in middle-class Victorian England'. His favourite daughter Annie had died aged 10 after a nasty illness. As a consequence CD could not accept the Christian dogma of a personal and benevolent God. But he was a clear enough thinker to know that a Prime Cause (which he called 'Creator') is an entirely separate matter from 'a personal and benevolent God'. Hence, he insisted on a Creator while rejecting the God of Love of Established Christianity.
Just for the record, he also wrote in a letter of 1879, to a Mr J Fordyce:

> 'In my most extreme fluctuations I have never been an Atheist in the sense of denying the existence of a God. I think that generally (and more and more as I grow older), but not always, that an Agnostic would be the more correct description of my state of mind.'

This was written three years before he died, and 20 years after *Origins* first appeared. I think we can call this a mature opinion.

More on this in the next chapter.

Questions… questions…

I'd heard the name of Richard Dawkins mentioned as a leading light in the field of evolutionary studies, and chanced upon a copy of his book *The Blind Watchmaker* in Oxfam.
I turned to Mr Dawkins, a 'neo-Darwinist', to solve my problems.

Chapter 3

Some Puzzling Logic…

Everything should be made as simple as possible, but not simpler
Albert Einstein

As some strength returned I began to feel well enough to do a bit of light work around the farm, and when I faded I still had enough energy to get back onto the paper trail of spooks and why Science seemed not to want to investigate them. There were lots of questions to be answered, and I wasn't even sure what I needed to know in order to begin answering them. I understood that a 'Darwinist' was someone who approved of Darwin's Theory of Evolution by Natural Selection. But what exactly was a 'neo-Darwinist', such as Mr Dawkins?
Darwin accomplished his great theory without any notion of the pioneering work on genetics that was being carried out in another corner of Europe by Gregor Mendel. A decade or two later, as it became apparent that genetics was a powerful new tool, and after a brief period of competitive in-fighting, biologists realised that the two new theories and mechanisms could be elegantly integrated, and neo-Darwinism was thus born:

Evolution via Natural Selection + Mendelian Genetics = Neo-Darwinism

§ …being the definition given by my *Penguin Dictionary of Biology* (1973). Technically, it is apparently not absolutely correct, but as rule of thumb it works fine.

Good. I understood that, and was looking forward to reading Richard Dawkins' book. After all, he had said 'What staggers me about Archbishop Usher's statement is not that he was wrong (so was everybody else) but that he was wrong with such precision'. Nicely put.
I began *The Blind Watchmaker* and was deeply impressed by the dozen or more enthusiastic plaudits in the first few pages, clipped from reviews by famous people and newspapers. This clearly was a book of some great moment. I read the Preface and was swept gently along by Mr Dawkins' easy and friendly style. This was good stuff. Mr D would surely answer all my questions.
But then something in the second paragraph caught my attention. Mr D states that:

> 'Biology is the study of complicated things that give the appearance of having been designed for a purpose. Physics is the study of simple things that do not tempt us to invoke design.'

From this I inferred that RD did not think that biological objects show evidence of true design but rather of what might be *mistaken* for design (something that might be designated as 'pseudo-design', perhaps); and that non-biological, ie merely physical, objects show no sign even of pseudo-design, never mind design proper.

§ There is a real linguistic problem here, as English doesn't contain a proper word for 'pseudo-design'. You may think this doesn't matter, but I strongly disagree: watch any tv nature programme and you'll hear the narrator say things like 'the shark is designed for speed', but if questioned, he will agree with RD that the shark is not designed at all. It just looks as though it has been, and for the sake of brevity he is saying the shark is designed because there isn't an alternative word. All well and good, but the fact remains that 'designed' means 'the product of a designer'. That's what the word *means*. To use it for the sake of brevity or metaphorically, is to court misunderstanding in the listener and, I'm afraid, sloppy thinking in the speaker. More on this slippery use of language later.

But do not molecules have 'design' then? Or atoms? Surely, what makes an atom of oxygen different from one of helium is its 'design', just as much as the 'design' of a vole is what differentiates it from a hippo? Of course, biological 'designs' are far more complex than atoms, but the *principle* of design (or 'pseudo-design') still holds true as much for an atom as for a vole. Would anyone deny this? Would you?

If an atom did not have any element of design, what would it be? Some sort of... mess. At the very least, it would not be 'an atom'. How could it be? It is its very design (of an identical nature to biological design or 'pseudo-design') that gives it its identity as an atom. You may think this is unimportant, but I insist it is not, for reasons we will return to.
RD then goes on to state:

> '(..man-made artefacts like computers and cars) are complicated and obviously designed for a purpose, yet they are not alive, and they are made of metal and plastic rather than of flesh and blood. In this book they will be firmly treated as biological objects.'

This was very puzzling…
It seems to me to be entirely unreasonable to 'firmly treat' a mechanical item which is quite clearly designed for a purpose but *not* alive, as 'a biological object': ie as an object that you are suggesting is *not* designed for a purpose, but which *is* alive. The disparity is just too great. One might just

as well say that 'This horse is dead, while this other one is alive; but for the purposes of my argument I will treat them as both being alive'. Starting from the premiss that a computer is directly comparable to a nightingale, or that a goldfish is directly comparable to a bicycle, is bound to lead to faulty conclusions concerning the nature of life and design, surely?
I was beginning to be worried by what I was reading. Then, over the page the Professor states:

> 'Machines are the direct products of living objects; they derive their complexity and design from living objects, and they are diagnostic of life on a planet. The same goes for fossils, skeletons and dead bodies.'

I appreciate that the point the writer is making is one of being 'diagnostic of life', but… 'products of 'living objects'"? .. Yes, 'living objects', as long as you and I regard ourselves as 'objects', but surely Professor D is being more than a little disingenuous here? 'Living objects' do not create anything simply by virtue of 'living'. *'Intelligence'* is the key to producing computers and cars and any sort of machine or artefact from a sun-baked pot upwards, is it not? Dogs are 'living objects' and so are jellyfish and protozoa and geraniums, but you and I are not like them. We are very particular sorts of 'living objects' who have extraordinary creative capacities, well beyond those of dogs and geraniums. Some 'living objects' can write interesting books on biology, for example, which requires a lot more of the writer than basic 'living'.
As an example, 'living objects' in the form of humanoids, just 'living' and purposelessly kicking sand around on the seashore, did not make the semiconductor.

§ Semiconductors, and the chips in your computer are made from very carefully manipulated slivers of silicon, which is itself made from sand, via an extremely complex and hi-tec series of chemical and physical treatments and processes.

It required intelligence and purpose to do that, plus all sorts of other human qualities like:

- the *desire* to make something new;
- the *imagination* to foresee how a semiconductor might be possible;
- the *planning* and foresight to organise the work;
- the *will* to actually start the work;
- the *persistence* that saw it through;
- the *culture* that enabled modern scientists and thinkers to systematically build on the work of their predecessors

- and, to repeat myself, the consistent *intelligence and purpose* that guided the process through its numerous stages of failure through to success.
- and, of course.. that mysterious entity we call 'inspiration' or *'intuition'*, without which, I suggest, nothing new ever happens.

§ More on Intuition later.

§ To claim, as RD does, that a car is just an assembly of parts, each of which obeys certain physical laws, is quite true; but it is not the whole truth. At the simplest level, if you fit the wrong carburettor to a car, it will no longer be 'a car', in that it will not start or move, and thus will not fulfil the job it was designed to do by the intelligence of people *with* a purpose and *for* a purpose.
If you then select the correct carburettor and fit it accurately, and then tune it properly, then your 'assembly of parts' (with any luck) will once more be restored to being a car: ie, after the application of *intelligence, will, and purpose* on your part.
Add to this the obvious need for every single one of the 'parts' in the 'assembly' to have been carefully designed, with enormous and sustained quantities of intelligence and purpose, all the way from the smallest nut to the engine block and body shell, and Professor Dawkins' definition of a car as just 'an assembly of parts' looks, well.. simplistic and naïve. A shocking thought, but how else would you describe it?
And apart from all the above, any 'assembly' is in itself a work of intelligence, by definition.

To compare a computer, which is the result of intelligent design with a fossil, which the Professor is claiming is *not* the product of intelligent design… is, I would say… 'very unapt indeed'.

I was by now quite alarmed at what I was reading, and I was still only on page 2…. No fewer than three very questionable propositions in two pages?

§ Let's be clear what they are:

> 1 that a goldfish gives the impression of design, while an atom does not.
> 2 that a goldfish bowl*, is treatable as a biological (ie 'living') object.
> 3 that merely 'living' is enough to produce creations, with no mention of intelligence, purpose, will, etc.
> *One might object that a goldfish bowl is not comparable to a car or computer as a bowl is not a machine; but we are here talking of the principle of design, not the complexity of the artefact, and a goldfish bowl requires the principle of design just as much as a Jumbo Jet does.

I had the distinct impression that these highly questionable propositions were going to form the premisses that the rest of Professor D's argument would derive from.

A little further on, still on page 2, he says:

> 'Our brains were designed for hunting and gathering.'

'Our brains were designed…', but apparently not as you and I know it, Jim. I could see no way of making sense in this Humpty-Dumpty world, where words mean what the RD chooses them to mean, no more, no less.

§'When I use a word,' Humpty Dumpty said in a rather a scornful tone, 'it means just what I choose it to mean - neither more nor less.' (from *Alice Through the Looking-Glass* by Lewis Carroll. *Picture thanks to Minniebeaniste.*)

'Words are our servants, not our masters.' (from *The Blind Watchmaker* by Richard Dawkins.)

This was rather alarming to me, especially as Mr Dumpty continued with:
'The question is,' said Humpty Dumpty, 'which is to be master - that's all.'

'Designed' *means* 'constructed or delineated for a purpose, by an intelligent mind', as we can check in any dictionary. A further check does not find an entry for Professor Dawkins' definition, which is… well, I don't know what his definition would be precisely, except possibly 'something which has *not* been constructed or delineated for a purpose, by an intelligent mind'.
I was quite shocked by all this. I was expecting a pleasurable read which would fill in lots of blank spaces for me, and which would explain my problems with why Darwin might be called 'purely material' and why spooks were unacceptable to science. But instead I was confused right from the start by what seemed to me to be several patches of seriously muddled logic.
Obviously, my next reaction was of disbelief. This was a world-famous professor, whose book had been lauded to the skies,

§… and who in 1995 was to become Professor for the Public Understanding of Science at Oxford: the highest biologist in the land, if not the world.

and here was I, a flipping gardener on sick leave, picking holes in his logic. Surely I must be mistaken?
I checked and checked again, but couldn't find a flaw in my thinking on any of the four quotes above. I hope you, dear reader will have checked those paragraphs very carefully. Have I made an error of logic? I still think not.

§ I do most powerfully realise that to criticise anything in the writings of such an eminent man is heresy in eyes of some. But scientific progress is based upon disagreement and rational criticism, as Professor Dawkins would be the first to agree.
Please… consider my comments simply through the eyes of logic, and not of any philosophy or long-held and unquestioned belief. I repeat my promise that no harm will come of this. I also promise that much good will eventually derive, if you read on with an open mind.

I read on, but was now on my guard.
What I urgently wanted to learn from *The Blind Watchmaker* was:

- Question 1: Why was Professor Dawkins, and presumably neo-Darwinists in general, so dead set against there being design in nature?
- Question 2: What precisely is 'materialism' in the scientific sense, and how precisely does it relate to this 'design'/'no design' business?
- Question 3: RD's views on the 'purely material' nature of Darwin's theories.

And, with any luck…

- Question 4: By what theory or argument did Science (as represented by Professor Dawkins) *know* that materialism was true and all other views were untrue?
- Question 5: And, what alternatives to materialism were there, anyway?

Lots of other questions arose of course, but that was plenty to be going on with.
Mr Dawkins.. lead on! Explain all!
I began a very careful read….

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Let's cut to the chase. Did Professor D answer all my questions for me? No…. I'm afraid not.

He did give a very lucid description of the principles and processes of Evolution and Natural Selection, and an introduction to genetics, but the nearest he came to answering my questions were:

- Question 1: No explanation or discussion; just a bald declamation that there simply *is* no design in Nature. It is all an illusion. What we perceive as 'design' is simply the result of tiny incremental changes in genes and DNA, Naturally Selected over aeons of time.

§ But the complexity of living creatures would seem to be entirely in opposition to RD's notion of *The Selfish Gene* (the title of his first book). Surely, if it is allowable to give a gene the highly anthropomorphic quality of 'selfish', then surely that gene will do what selfishness does best: looking after Number One, and thus selfishly aiming to replicate only itself? That's what 'selfish' *means*.
But all the designs (or 'RD-non-designs') of Nature point to quite the contrary state of affairs: a bewilderingly complex display of cooperation between genes. If no cooperation, then no structure of any sort; just a pile of genes. At best, any 'selfish gene' is the progenitor of a cancer, not of an immensely complex and cooperative human body or even a geranium. Or did 'selfish' now mean something else, too? More confusion. We'll come back to this 'selfish gene' business in Chapter 27.

- Question 2: There is no mention of materialism in the book, so no definition is offered.

- Question 3: This was actually a bit disturbing. It is clear that Charles Darwin is RD's hero, and quite right too, but the Professor seems to have forgotten that CD mentions 'the Creator' in a positive manner in each of the editions of *The Origin of Species*. In fact RD says that any explanation that has the need for 'a Creator' is 'transparently feeble'. That's one in the eye for poor old Darwin, then, hero or not.

§ An apology: in a previous book, *Scenes from a Smallholding*, I stated as fact that the first edition of *Origins* contained no references to 'the Creator', whereas it actually contains seven, of which two are positive. To repeat myself, this number rises to nine mentions by the sixth and final edition of which three, including the famous final sentence, are positive.
I am embarrassed for my error, and apologise. Sheer carelessness. It won't happen again.

He also goes on to say that Darwin's explanation for all the improbable creatures we see in the world around us is that they came into being

'…by gradual, step-by-step transformation from simple beginnings, from primordial entities sufficiently simple to have come into being by chance.' *Richard Dawkins*

This, I'm afraid, is simply not true.
Not only did Darwin acknowledge 'a Creator' in all editions of *Origins*, but he also states quite unequivocally

'…I have nothing to do with the origin of the primary mental powers, any more than I have with that of life itself.' *Charles Darwin*

Please read that sentence again, then check it for yourself:
1st paragraph, Chapter 7, 1st edition; or 1st paragraph, Chapter 8, 6th edition.

- Question 4: There was no discussion of why materialism might or might not be true, and no proof offered.

- Question 5: No discussion of alternatives to materialism either, although there is mention of 'ying (*sic*) and yang'. The options he did discuss could all be lumped together as 'materialistic', as I understood the term, though they were never called such.

Now obviously it is silly to blame a writer for not writing the book you want him to have written rather than the book he actually wrote, but in this case I think my comments are valid, because my questions are all relevant to the deepest level upon which neo-Darwinist claims seem to be based. Please read the questions again and check whether you agree with me in this judgement of them. For example, 'materialism' seems to be an underlying premiss behind many of RD's claims, but it isn't even mentioned in the book. Surely we could expect to be told why materialism is true, as so much else seems to depend upon this?
I found lots of other chunks of faulty logic too, of which perhaps the most important is RD's complete neglect of the relevance of Mind in the role of human creativity, and in the analogies he makes.

§ I'm using 'Mind' with a capital to mean 'The faculty of mind', as opposed to 'changing one's mind' etc. The capitalisation also helps to draw attention to the extreme importance of this faculty. From now on I will often capitalise Life and Consciousness for the same reason

For example, he shows us a page or two of electronic critters he calls 'biomorphs' which have all resulted from a computer program he wrote. He says that all the diverse little forms he shows us are 'randomly mutated progeny' which have developed 'over many generations of cumulative evolution'.
But surely the force behind all this diversity was his own mind, which devised the program, and the instructions he inserted into the program?

The truth of the matter, surely, is that the machine carried out RD's intelligent instructions (which included the instruction to iterate according to a random sequence)?
Thus the analogy that he is trying to draw between his 'computer-generated-biomorphs' on the one hand, and 'naturally-evolved-lifeforms' on the other, must require similar intelligent instructions for *both* parties, if the analogy is to be apt?

It's as if for Professor Dawkins Mind as a creative force simply doesn't exist, although his own academic brilliance must surely suggest otherwise! I was very surprised that there is no mention at all in the index of *The Blind Watchmaker* of either 'mind' or 'intelligence'.

Why such total dismissal of Mind as a force? RD often refers to 'our minds', 'your mind', 'my mind', 'the human mind', 'rational minds', etc in the text.
Surely he must have known that he had to acknowledge the input of Mind, Purpose, Will etc into the design of the computer hardware and software that he was using, and into all his own tireless programming of biomorphs, if his analogy was to be at all apt?
Any why so *many* false analogies? Computers, cars, locos… *all* the products of endless intelligence, purpose, will etc… equated willy-nilly with extraordinarily complex living creatures which RD claims are *not* designed by intelligence, purpose, will, etc. Where was the logic and reason in all this?

§ And what of RD's claim that the self-generation of Life from non-life all depends on there being enough 'time' in which for it to occur? This is simply an inappropriate argument. Of course you can argue quite sensibly that given aeons of time a fish might morph into a human via the process of Evolution via Natural Selection; but you can not argue sensibly that a stone might morph into a fish, no matter how many aeons of time you give it. A fish is alive; a stone is not. Evolution is not an appropriate process to look to. Thus time does not come into it at all.

And the misrepresentation of Darwin's views? Accident? Presumably. But as a careful and sophisticated scholar RD surely must surely have noticed at least one of CD's two positive mentions of 'the Creator' in his personal copy of the famous first edition, even if he managed to miss CD's denial of having any views on the origin of life? And could he really be ignorant of the 'Creator' in that famous last sentence of the final, definitive, edition?
I'm not given to conspiracy theories, but this did seem particularly odd… First the writer of that Introduction, and now the highest authority in the land, both misrepresenting Darwin's clearly stated views.

§ Darwin is at pains to make his views absolutely clear via the epigraphs he presented on the first page of *Origins*. Some reprints omit these brief quotations, but they may be found in full, in the original rather stodgy language, in the Gutenberg Project e-versions at http://www.gutenberg.org/wiki/Main_Page

> Common to both 1st & 6th editions:
>
> 'But with regard to the material world, we can at least go so far as this - we can perceive that events are brought about not by insulated interpositions of Divine power, exerted in each particular case, but by the establishment of general laws.'
> *Whewell: Bridgewater Treatise.*
>
> and…
>
> 'To conclude, therefore, let no man out of a weak conceit of sobriety, or an ill-applied moderation, think or maintain, that a man can search too far or be too well studied in the book of God's word, or in the book of God's works; divinity or philosophy; but rather let men endeavour an endless progress or proficience in both.
> *Francis Bacon: Advancement of Learning.*

From these it is clear that CD believed in 'general laws' (Whewell), and in 'God' (Bacon). How he squares the two apparent opposites is not so clear.

However, by the time of the 6th and final edition, he clarifies things by adding a third epigraph:

> In the 6th edition, but not in the 1st:
>
> 'The only distinct meaning of the word 'natural' is STATED, FIXED or SETTLED; since what is natural as much requires and presupposes an intelligent agent to render it so, i.e., to effect it continually or at stated times, as what is supernatural or miraculous does to effect it for once.'
> *Butler: Analogy of Revealed Religion.*

This third epigraph makes it clear that Darwin believes Intelligence forms what is 'natural'. In other words an intelligent creative force makes nature/the world/the Laws. This would tally with his use of 'the Creator' in the texts of *Origins*, and his comment in that letter to Mr Fordyce in 1879, in which he says: 'I have never been an Atheist in the sense of denying the existence of a God.'

What was going on here? I'd seen Mr Dawkins many times on television and he seemed like a perfectly honest man. Why were there so many lesions in his arguments? And how had he written such an apparently comprehensive book without understanding how analogies may and may not be used, and without addressing any of the fundamental questions I've listed above? Why was so much apparently just taken for granted, in fact?

I must be missing something. I checked and re-checked, yet again, but could not put my hand on my heart and say my crits were wrong. They were simply not wrong in the eyes of logic as I understood it.

§ Please do the same, dear reader. Check and re-check my logic above. If you find you must agree with just one of my comments on the Professor's text, then it follows that his logic is at fault in at least one place, which makes his whole argument potentially faulty and thus in need of attention from top to tail.

All the same… I was very uneasy. How was it nobody else seemed to have noticed all these errors? What about RD's peers? All those people who wrote glowing testimonials in the front of *The Blind Watchmaker?* What about the entire scientific community, for heaven's sake? Had nobody else spotted what I had? Impossible to believe. I must be wrong, somehow.
More and more questions….
Time to get more informed.
At the very least, I needed to carefully find out what it was I needed to find out….

Chapter 4

Why Materialism?

None are more hopelessly enslaved than those who falsely believe
they are free
Goethe

Our new house cow 'April' produced her first calf in the spring. A perfect little creature, but still-born, poor beauty, and a cause for wonder for us all: immaculate hooves, eyes, nose… just no spark. What, I wondered, was that spark? Where had it come from? Where had it gone?

§ Over the years I was to see this 'spark' go from the eye of a number of animals, including dogs, sheep, and a cow. One second they are alive, but then the eye somehow alters. It's very difficult to explain, but if you've ever experienced it you will know what I'm talking about. The heart may beat on for a moment or two longer, but the animal has already died. One is then left with the puzzle of the fact that a few seconds ago this assemblage of 'selfish genes' was alive, but now it is not, although the genes remain precisely the same as they were a moment ago.
Richard Dawkins scorns the idea of a 'vital spark' and compares it with the sparks emitted by a locomotive. I'm afraid this is another extremely unapt analogy, whether the 'vital' spark exists or not.

And how did green grass and water produce those immaculate hooves and eyes anyway?

We buried her perfect little form in the orchard, rather drippily, then turned to the burstingly practical problem of what to do with all the milk April was still producing. We couldn't possibly drink it all so we bought in a couple of infant Jersey bull calves, who would otherwise have gone for veal production abroad, banged up in crates for their short miserable lives.

In fact, we ended up with two milking cows and four calves that spring. Feeding time was a five-star pantomime: milk, buckets, whipping tails, and butting calves everywhere. The kids pitched in. Feet got trodden on. Yelps were yelped. Butter was made. Cheese was made. More butter. More cheese. It was a great spring, apart from our poor lifeless calf.

§ More detail in *Scenes from a Smallholding*, along with a discussion which explains why cheap milk means 100,000 calves being killed at birth in the UK every year.

***

Reading *The Blind Watchmaker* had brought me no closer to answering the question of 'Why does Science seem to be so absolutely opposed to Anomalies?',

§ Another initial capital. I'm using it here to indicate 'anomalies of an apparently paranormal nature', like poltergeists, telepathy, etc.

although I was now beginning to suspect that the level at which rejection was being made lay very deep within the philosophy of science, and it looked as though 'materialism' was somehow involved in this.
So my next task, I thought, would be to first find a precise definition for materialism, and then look deeper into the principles of science… which meant I was going to have to broach the bogs and swamplands of philosophy, isms, and ologies…
This did not fill me with joy, as my previous forays into this field had been pretty baffling. Every writer I had tried to read, from Berkeley to Nietzsche had left me more puzzled than when I started.

§ In my teenage days I thought I ought to read a bit of Marx, and borrowed *Capital* from the village library. By the time I'd got to the bottom of page one I realised that there were at least three words I'd never come across before, and another dozen whose meanings I was unsure of. As for the ideas expressed, well I didn't have a clue. I turned over the page and found someone had pencilled onto the top margin 'Don't bother, it gets worse'. Some of the best advice I've ever had.
Actually, I did try Marx again in my political years, but with the same result. This time, however, I was older and a little more self-confident, and found that words and phrases that other people seemed to understand were just too perforated and slippery for me to claim to have fully grasped. I never did work out what 'dialectical materialism' was, other than some sort of cut-and-paste free for all, involving some sort of 'materialism'. The m-word again. (Interestingly, 'materialism' isn't mentioned in *The Communist Manifesto* either.)

The basic problem for all philosophers, and even more for their poor long-suffering students, is 'What do words actually *mean*?' You can't explain a theory without using words, and you must be very clear about what you want your words to mean. This is not as easy as it sounds, as Humpty-Dumpty knew full well.

§ As an example: take the word 'window'. Can you define it, so as to include all windows and exclude everything that is a 'non-window' (a dictionary won't help with this, incidentally)? I bet you can't. 'A window is a hole in a house wall, filled with glass' doesn't do it, does it? Some windows are filled with plastic; some windows are not in houses, but in sheds, etc; pre-Tudor windows were made of sheets of polished horn, and were portable. Is a skylight a window? Is a porthole? A mesh-filled panel in a tent? And what about a wall made entirely of glass? Is it a window? And what about a car windscreen?

You can have hours of fun with a friend trying this game of definitions. And I bet you eventually come to the conclusion that a word means only what we at this present moment agree it to mean. (Humpty-Dumpty's problem was that he alone 'agreed' on what a word meant and someone else's agreement was not required: the world of paranoid delusion. Richard Dawkins seems to risk sharing this problem when he says: 'Words are our servants, not our masters', presumably including here the word 'designed', as previously noted.) And what will matter most in your final definition will not be the physical characteristics of a window (or a book or a nail) but its purpose. And this is for a simple physical object like a window. Note the intrusion of that non-material, intelligent quality of 'purpose' again.

So, bearing in mind how difficult it is to pin down meaning in a simple everyday word, what hope have we, when reading any philosopher, of coping with concepts and abstractions like 'sense' or 'feeling' or 'God' or 'soul' or 'being' or 'reality', or even 'I'… especially when the text may have been translated from a foreign language whose subtleties of meaning do not carry across perfectly? (Incidentally, can you define 'I'? Worth a try… and bear in mind while you are trying, what distinctions you find yourself making between things you might previously have thought were a unity.)

§ An example of the trickiness of translation: the first line of the *Lord's Prayer* is traditionally translated as 'Our Father which art in heaven..', but the original language it was written in is apparently a much subtler tongue than English. According to Neil Douglas-Klotz, in *The Hidden Gospel*, the original Aramaic phrase of 'Abwoon d'bashmaya' might be equally well translated as:

O Thou, the One from whom breath enters being in all radiant forms…

Or

O Parent of the universe, from your deep interior comes the next wave of shining life…

Or

O fruitful, nurturing Life-giver! Your sound rings everywhere throughout the cosmos…

Or

Father-Mother who births Unity, You vibrate life into form in each new instant.

Translation is a serious business. Consider the scientific and philosophical implications of these alternative versions, which are quite missing from our traditional *Bible* version. 'Resonance' and 'light' seem to feature strongly, for a start. More on 'resonance' later. And 'light'.

I forget how now, but I did eventually come up with a definition of the philosophical theory of Materialism (for which I will now use a capital, to distinguish it from the everyday meaning of 'obsessed with the things of the material world; like shopping, say'.)

Materialism: the belief that everything in the universe began with Matter: originally meaning nuclear particles then elemental chemicals, and eventually, gases, water, and rocks.
Since Einstein has showed via $E=mc^2$ that Matter and Energy are interchangeable, a modern Materialist would claim that Matter/Energy, (including electricity, gamma rays, etc) and *only* Matter/Energy, is the cause of everything in the universe (I'm capitalising these profound principles of Matter and Energy to distinguish them from everyday usages).

§ That simple-looking formula, $E=mc^2$, conceals the fact that 1gm of Matter apparently contains more Energy than 20,000 tonnes of TNT. Don't mess with it.

Straight away this led me to another problem. If only Matter/Energy lies behind everything, then where does that leave Mind? And Life? And Consciousness? Was Mind just Energy, like electricity? And Life? I was struck again by the fact that RD had simply never mentioned 'intelligence' or 'mind' in all his analogies. In fact (but I may be wrong here) I don't think either word is mentioned as a proper active entity in the entire book. Was he avoiding the subject? There's that conspiracy theory again…

§ Don't worry… the conspiracy phase passed. I'll explain how and why as we progress.

***

Another couple of years buzzed by: more calves, more lambs, more veg, more experience.

We continued to improve our techniques and our tiny income grew a little every year. But the twin truths were that yes, we were coping, and our skills were improving, but the fact we could not avoid was that my health looked as though it was never going to return to 100%... which left us zero wriggle-room for either coping with disasters or for Great Leaps Forward. If we were both 100% fit, we knew we could make the smallholding work properly and could implement all the bright ideas we had for cutting down labour and improving efficiency, such as coppicing the woodland, and running a generator from the stream at the bottom of the cwm to heat the polytunnels. But anything less than our combined 200% meant an eventual slow but certain stagnation and long-term gradual decline.

***

I'd read quite a lot of pop science books by this point and it struck me that all of them had the same thing in common with Professor Dawkins' book:

they avoided the concept of Mind whenever possible, and all seemed to take Materialism as a proved fact: in other words, as the sound foundation upon which all other theories might be safely built.

§ One Scientist I heard on the radio, whose name I didn't catch, said that 99.9% of scientists believed in Materialism.

However, in none of these books was Materialism ever openly discussed, debated, or proved to be a Truth, even though to my mind it was seriously questionable, as it seemed to require something from nothing: ie, Life from non-life. Why was Materialism never discussed? And where might I find such a discussion? It must have been discussed *somewhere*!
I'd also come across several claims such as 'Scientists do not believe in God'; 'No scientist takes the supernatural seriously'; 'Telepathy is bunk'; and so forth.

§ But not 'all scientists' do not believe in God (sorry about that clumsy double negative). I'd heard of several who do, including Dr Francis Collins, the head of the Human Genome Project, who had become an adult convert to Christianity. Working in the same speciality as the atheistic Professor Dawkins, but a deliberate Christian? More and more puzzling.

These were all clearly Materialist statements, but what struck me most was how 'Materialist' and 'Scientist' seem to have come to mean the same thing. Say 'Scientist', say 'Materialist', except for the few who seem to have been side-lined by the writers of books who claim that 'Scientists don't believe in God'.
The notion that **Scientist = Materialist** was a new idea to me, but it was beginning to explain why Science wasn't interested in spooks and flying plates and all the thousands of other weird Anomalies that Colin Wilson and Lyall Watson and thousands of others have reported down the centuries. I could imagine that a spook or telepathy would be pretty difficult for a Matter-only philosophy to explain.

But my over-riding problem of the moment was that I could not see how Matter/Energy (ie, rocks, gases, lightning, radiation etc: none of which are regarded as being alive in any sense) could have produced out of themselves *alone* anything that might be called Life. Surely that would mean something coming from nothing? The Greater arising spontaneously from the Lesser? Wouldn't that be 'magic', or 'a miracle'… the very thing that science itself seems to despise?

But presumably, this was just a matter of my own ignorance, so I went to see a friend who had a degree in palaeontology to ask if he could clarify

things for me. By coincidence he was reading RD's first book, *The Selfish Gene,* when I arrived. I asked him what he thought of it. He looked puzzled and then a little pained. I explained that I'd just read *The Blind Watchmaker* and had found several logical flaws in it. He looked flustered and then impatient. 'I don't see how Life can have spontaneously occurred just from chemicals', I explained. My friend's impatience became hard for him to conceal. Then he said, somewhat testily, 'Making Life is easy….' and went on to astonish me with long words about genetics.
But it was that phrase about making Life being easy that caught my attention.
Really? *Easy*? It had been done then? And presumably many times if it was easy. Another gap in my knowledge. They were piling up.

§ Can gaps pile up? I'm reminded of a friend who said that some days the local carpark was packed full, but on other days you couldn't move for empty spaces.

But I was making progress. At least I now knew roughly what I was looking for, and I knew what Materialism was.

A couple more things were now bubbling to the top of my list:

- To discover who had made Life and how easy was it? And why hadn't I, with my long-standing interest in science, ever heard of it? Surely it would have been in all the newspapers? Nobel Prizes…?

- And as Materialism seemed to require the bothersome spontaneous creation of Life from non-life, what alternatives to Materialism were there? There must be alternatives, surely? Or were the bumblings of The Church that had bored and baffled me for so long at school, the only alternative? *Surely* not…

- And then there was that niggling issue of how 'Scientist' had come to mean 'Materialist', even when some of them clearly weren't. I couldn't work that one out at all.

Maybe I should start right at the bottom, and define 'science'. I consulted a few books and came up with:

Science:

> A systematic means of investigating the world via the process of Hypothesis, Evidence and Theory.

A Hypothesis (a smart guess), when backed up by adequate Evidence (data amassed by observation or consistent experiment), is promoted into a Theory (a temporarily accepted 'truth').
This Theory is held as the best available until some other Hypothesis should be backed up by enough persuasive Evidence to replace it.
A scientist seeks to explain an observed Effect by explaining its Cause and the Mechanism that links Cause to Effect. For example, the issue of why there are so many species in the world (an Effect) was explained by Darwin thus: the Cause of speciation was lots of slightly variable infants being born into varying circumstances; the Mechanism was Natural Selection, which ensured that only 'the fittest' survived to breed more infants suited to the local circumstances, leading first to variegation and eventually to a new species being formed. A classic case of the scientific process.

Three points:
1 Science is essentially a continuing *process* or *methodology*, which constantly updates and upgrades, replacing old Theories with newer, bigger ones, which can include greater amounts of Evidence.

§ For example, the Flat Earth Theory gradually gave way to the Spherical Earth Theory in the popular mind as more and more evidence piled up from global voyagers (although the ancient Greek philosophers and every master mariner since those days, including Columbus, already knew the Earth was round).
The President of South Africa, Paul Kruger, received a pioneering American sailor who had docked at Cape Town during his solo trip round the world in 1898. The President was a Flat Earther, and remained so even after his meeting with the sailor: '"You don't mean round the world," said the president; "it is impossible! You mean *in* the world. Impossible!" he said, "impossible!" and not another word did he utter.. to me.' This was despite the fact that a Phoenician sailor had rounded the same Cape in 600BC and almost certainly knew that the earth was not flat. Old Theories die a very slow death, as in the saying 'I've made up my mind; don't confuse me with the evidence'. We will be returning to this tragic human propensity later.

2 Thus, being essentially a process, science has, or should have, no dogma except the belief that logic, reason, and the principle of cause and effect should not be violated.

§ 'Nothing comes from nothing; nothing ever could' from *Something Good* by Oscar Hammerstein II in *The Sound of Music*. As neat an exposition of the Law of Cause and Effect as I've ever come across.
'Ah! But what about the wacky world of quantum physics?' I hear you cry. We'll come to that later.

3 There is no mention of Materialism in this definition of 'science'.

I must point out that the above definition of science is my own, assembled from many others. However, none of these other definitions mentioned Materialism either. Check for yourself in a few dictionaries.

So how had 'Materialist' become near-synonymous with 'Scientist'?

I feel the need to belabour this one a little… just to be clear…
A general view of scientists is either of people who spend their whole lives wearing lab coats and peering into microscopes, or standing in front of blackboards full of Greek and squiggles. But the ordinary GP and dentist think of themselves as scientists, as do meteorologists, psychologists, and engineers and technicians. So too, as I recently discovered to my complete surprise, do yogis. Their reasoning is that they approach their business in a pragmatic, empirical, and systematic manner, questioning everything as they go, just as any other scientist does.

§ *Pragmatic*: addressing problems according to present conditions rather than obeying fixed theories, ideas or rules.
§ *Empirical*: evidence derived from observation or experiment rather than dogma.
A general view of yogis is of people who spend their whole lives trying to poke their toes up their nose. This is erroneous. More later.

A practical definition of a scientist, is 'someone who works according to the scientific method', either in day-to-day medicine, say, or in some sort of research establishment.
The scientific method for a researcher goes like this: someone comes up with an idea

§ Now where did that idea spring from? More on Intuition later.

that he thinks will explain something that is at present a bit of a puzzle. He then devises experiments or carries out observations to see if his idea (his 'Hypothesis') is actually valid: does it solve the puzzle? Yes or No? If the Evidence does stack up, he will publish his findings in a learned journal, like *Nature*, where like-minded researchers (his 'peers') will either support his findings and Hypothesis or rip it to bits. If it passes this peer review, it is likely to be accepted as a Theory.. ie, the best explanation we have, *so far*.
That little phrase 'so far' is vital. No Theory is taken to be an absolute Truth. It is universally accepted that sooner or later some other, deeper and more inclusive Theory will overtake it. In other words, science should never get bogged down with a dogma: a 'Truth' of any sort. This is what

made science such a breath of fresh air after centuries of Religious dogmatic absolutism, where logic didn't get a look in, and if the Pope said 'jump', you jumped or paid the price.

§ For example, Giordano Bruno, a priest, was burned at the stake for jumping in the wrong direction. More on him and Galileo later.

Now I felt I was beginning to see the way ahead. The most pressing problem now seemed to be the question of how easy was it to make Life? Back to the books…