

Why Quakerism Is More Scientific Than Einstein

Bob Johnson

NEWTON's laws of motion predicted that light would travel faster from a moving source—it doesn't. Einstein was convinced that unruly electrons had no place in an orderly, understandable universe. Both assumed that human knowledge could be perfected, mathematically, and that a coherent scientific account of the world we find ourselves in, not only exists, but is available and open to dedicated human enquiry. This paper argues that Hume, Kant and recent work on Hubble's Constant render this idealistic position untenable. The remedy proposed is not to tighten scientific definitions ever further, but to reposition Science so as to prioritise the biosphere. This entails placing the process of living organisms centre stage, since they defy the Second Law of Thermodynamics, thereby reducing Uncertainty for all—an approach best exemplified in clinical medicine, where despite unbridgeable gaps in medical knowledge, healing can and does take place. Using Quaker insights developed in the 1650s, a non-theological pathway is offered which emphasises human creativity and social cohesion. Unhappily psychiatry today, under the guise of being 100% scientific in the Einstein way, discards three counts of millennial medical wisdom, with catastrophic consequences, as shown by scientifically valid data. A healthier approach to mental and social health, emphasising trust and consent, is described.

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Can Science Learn From Religion?

“God does not play dice with the universe”. Einstein devoted his life to patterns, especially in mathematics. So it's no surprise that Quantum Mechanics stuck in his throat, for at its heart is the Uncertainty Principle, the very essence of patternlessness. There was, and is, no way round it—you have to choose, either where an electron is, *or* where it's going—you can never *know* both at the same time. Since nothing (including us) moves without electrons, that's an eternal problem. So, for the brave-hearted, there's at least as big a black hole in our knowledge of subatomic particles as ever there was with Religion. The speed and position of all electrons vary inversely, what you gain with the one, you lose with the other, and always will. This isn't going to change, ever—there's simply no room on an electron for a location device. Uncertainty is built into the very fibre of our subatomic world. The only way technology can use it, is to deploy human ingenuity and devise a workaround—much as we have to do everywhere else.

Einstein protested. If he could have mustered scientific or mathematical evidence against, you may be sure

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he would have done so—but even he could find none. So, in extremis, he fell back on his religion. Here we have the preeminent scientist of our era, resorting to the one topic Science was meant to “explain” (think Galileo). Either there is more hidden among the extensive paraphernalia of Religion for us still to unearth, or the universe differs decidedly from what we have been expected to believe—perhaps both. Beliefs matter—and this paper examines how one unusual view of religion allows us to trace a rational, non-theological pathway through the primeval chaos. To do this, it exploits the way the scientific method was originally meant to work. Science should be providing us with a human activity that is ruled, not by dogma, not by pre-judged expectations, but by what works *experimentally*. Stripping away some of its accretions could liberate it once again.

Einstein wrote his letter, which includes the above quotation, 100 years ago. Since then, while Quantum Mechanics has progressed out of all recognition, “God” has taken a back seat. Yet the challenge which Einstein sought to answer, remains unresolved. Is there, in reality, any fundamental pattern to our cosmos? Can there be, in practice, any underlying rationale to all the diversity we see? Or is it basically as chaotic as the Old Testament said it was to begin with. This entails revisiting epistemology, working out how we know things, and indeed how there are other things we can never know. It helps to borrow insights from a somewhat unexpected quarter—Quakerism.

Quakerism is little known, and perhaps even less well understood. Commonly associated with a certain commercial brand of cereal, it is thought of either as too nebulous to carry much weight, or too flimsy and idealistic for the everyday challenges of this cruel world. However, closer acquaintance offers a different perspective. It was born in the interregnum, between the beheading of one king, and the coronation of his son. A number of religious flowerings took place in that extraordinary decade—filling the gap left by the abrupt dissolution of all established clergy. What is unusual about Quakerism, is that it has lasted 370 years, not unscathed, but with certain basic, and indeed vital principles, still in play.

How Can We Know Anything?

Science above all else, is about knowing. Where’s the scientific evidence to justify that view, or underwrite that action? What’s the “science” behind that statement, that opinion? Scientists are credited with “breakthroughs”, with eradicating shibboleths, and pointing a way forward that may not be immediately obvious, but which not only makes sense, but will make things better. A picture is being built up, arduously, with infinite patience, that will “explain” why things work the way they do, and thereby enable us all, to live happily ever after. This picture is said to be different from other, earlier views of where we are, what the cosmos is like, and where we’re going. This view is even thought to merit the accolade “scientific”—more, it claims to be the only one there is.

In this, there are decided parallels with earlier “religious” breakthroughs, where “new heavens” and “new earths” were frequently proclaimed. It had been hoped that Science would eliminate all the cantankerous, and continuously lethal disputes, so characteristic of Religion. Science would do this, by replacing them all with The One Truth, to which every sensible person would, perforce, comply. Einstein here, is therefore rather letting the side down, by allowing “God” to have a say in what should have been a scrupulously non-religious matter.

At this point, we need an Einstein-type thought experiment. Human reasoning is on a knife-edge, razor sharp, with cavernous pitfalls on either side, all too ready to obliterate any and all meaningfulness. This applies

to every thought we ever have, every idea that crosses our minds, every pronouncement we ever make—religious, scientific or quotidian. So let's start with what's happening in this precise moment, in so far as we can. I am currently writing words—you are reading them. Pause. I require light to travel up from the words, so I can ensure I've typed them correctly. Sounds simple enough, what could be more obvious? Surely we can all agree that that is what is happening?

But is it?

Into that obvious everyday act of reading and writing, I introduced the notion of light. It travels. In this case from the words to me, and then to you. But light, it turned out, carried in disguise, a devastating secret. Alone among all the other everyday items we observe, its speed does not vary. However fast or slow its source, light always moves at a constant rate. Nothing else does this, and it matters. Bullets leave a speeding gun, faster—light from a travelling torch, does not—light obeys incomprehensible rules, all of its own. This impacts on how we know things, how we reason about them. It was of course this novel scientific finding that prodded Einstein into action in the first place. He coined the term Relativity to account for it. And of all recent scientific notions, this one has surely survived intact. Along with his famous equation, Relativity is here to stay.

Because light takes a finite time to travel from here to there, it impacts on all our observations. I designate a moment as “now”—and having done so, I communicate this to you. But there's a delay, as the light travels from me to you—nothing is ever instantaneous again. Einstein called this the “Relativity of Simultaneity”, a poetic name for a damaging effect. He went further, and proclaimed that just as light never varied as to speed, nothing moved faster—so if you wanted to convey an idea, an item of data, it could never occur in the absolute, it would always take a finite time to reach your audience. During this interval, anything else could also have happened. We couldn't know anything about these extraneous items, at least not until data from them had completed the finite time it took to reach us.

So it's no good just having a bright new idea or fact, a new goblet of “knowledge”, you need to send it off into the outside world, if it is to have any impact. And every time you do this, there's an interval, a delay—nothing is ever Absolute again, it's all Relative—something which most Religions object to, indeed that's largely why they came about initially. Absolutes have a special place in the human heart—but, post-Einstein, none at all in the world in which we all live.

This process of communicating an idea from one person to another has innumerable other pitfalls. Time (and the speed and/or position of the observer) is merely one of them. Early engineers investigating communication, came up with equally discomfiting conclusions, which were just as debilitating to our reasoning capacities, though little spoken of since. Shannon and Weaver (1963), some 70 years ago, looked into channels along which, for example, telephone messages ran. They divided the process up into three parts—encoding, transmission, and decoding. Errors, greater or smaller, were inevitable at each stage. They termed this “noise”—noiseless communication was an ideal that could never be realized. The person sending the message, and the one receiving it, both had to make allowances, had to adjust what they received, to what was intended, a point of rather more consequence than is usually allowed, as we shall see.

Having to compensate for “noise”, again undermines the notion that there is one and only one Science—whatever symbols you use to convey knowledge—words, mathematics, gestures, emoticons—all are subject to “noise”. None is ever noise-free. It's that “playing with dice” element, a lump of irreducible randomness, which so distressed Einstein in the first place. All communications need human intervention to make sense—a point which requires particular attention in its own right. This is not a personal opinion, a

subjective judgement, an unscientific pronouncement—it's a clear sighted appreciation of the difficulties we face about the things we know, or (in reality) can only ever partially know.

Kant's Inconclusive Awakening

There's worse. If I give you this antibiotic, I *know* it will clear your pneumonia. How reliable is that knowledge? Well, I could argue, that's what it did in the past, and it worked perfectly well then, so I "know" it will do so again today. Spot the flaw? David Hume pointed this out in 1739 (Hume)—it didn't fare too well then, and hasn't done since. But it hasn't gone away. Just because an event follows a cause today, there is no guarantee it will do so again tomorrow. Yet that is what we have "knowledge" for, so that we can cope with the unexpected. And again, just as Religion aimed to remove Uncertainty from life, so Science was intended to replace it with Certainty. But both are subject to "noise". Neither can fulfil their earlier promise, 100%. Both have to be taken with a pinch of salt, they have to be subjected to human judgement, human evaluation. Which is precisely what distinguishes wisdom from knowledge, data, or "facts" (or sadly, nowadays from fake-news).

One of the most significant paragraphs I ever read, was written by Immanuel Kant in 1783. In it he states as follows—

I freely admit: it was David Hume's remark that first, many years ago, interrupted my dogmatic slumber and gave a completely different direction to my enquiries in the field of speculative philosophy.... When we begin from a thought well-grounded but not worked out which another has bequeathed to us, we may well hope through continued reflection to advance beyond the point reached by the sagacious man whom we have to thank for the first spark of this light.

Ich gestehe frei: die Erinnerung des David Hume war eben dasjenige, was mir vor vielen Jahren zuerst den dogmatischen Schlummer unterbrach, und meinen Untersuchungen im Felde der spekulativen Philosophie eine ganz andere Richtung gab. Ich war weit entfernt, ihm in Ansehung seiner Folgerungen Gehör zu geben, die bloss daher rührten, weil er sich seine Aufgabe nicht im Ganzen vorstellte, sondern nur auf einen Teil derselben fiel, der, ohne das Ganze in Betracht zu ziehen, keine Auskunft geben kann. Wenn man von einem gegründeten, obzwar nicht ausgeführten Gedanken anfängt, den uns ein Anderer hinterlassen, so kann man wohl hoffen, es bei fortgesetztem Nachdenken weiter zu bringen, als der scharfsinnige Mann kann, dem man den ersten Funken dieses Lichts zu verdanken hat.

The "spark" to which he referred was Hume's incendiary notion that though we might reasonably expect Causality to work most of the time, there can never be any *guarantee* that it would, certainly never a *scientific* guarantee. An event may well follow a cause today, but there is no *necessity* for it to do so tomorrow. In other words, reason as we might, the fact that we conclude that B follows A today, affords this reasoning no Certainty that it will do so again. There is only a given probability.

So the links in our reasoning, in how our knowledge hangs together, are wobbly. They cannot be guaranteed, either by authority, theology, or Science. In practice, of course, we take this in our stride—this bit of machinery worked well enough yesterday, it's on the blink today—but then that's what you expect in this imperfect world. But this undermines the *sapiens* aspect of our species, and it rankles. Hume was disappointed with its initial reception. Kant laboured long and hard to contradict it. He died, so the story goes, a disappointed man. We need to learn that if an intellect as powerful as Kant's—undoubtedly the foremost philosopher since the Greeks—if he is unable to refute Hume, we should not expect to either.

Put this into the everyday. We "know" the car will start "because" we turn the ignition key. "Because" stands in for "by-the-cause". The better we know a cause, especially in healthcare, then the more efficacious will be our interventions, without exception. Where the cause is cloudy, or the causality murky, then the probability of a successful outcome is reduced by the same degree. Note that the Uncertainty Principle

undermines Causality in a whole variety of ways. This is often “excused” on the grounds that Classical or Newtonian Physics (in which we all live and fall ill) doesn’t apply to the very small, and somehow we shouldn’t expect it to.

Hume’s insight is confirmed by the Uncertainty Principle—though this aspect of our Science is rarely given the prominence it is due. There is a pathway through, but this is blocked, and will remain unavailable so long as the notion that a Clock Work Universe does exist, just waiting for us to unpack. Knowledge is never noise-free, its chains of cause and effect are never immaculate—worse there are too many of them, and none have a First Cause that can have any meaning for us today.

Any Number of Big Bangs

Let’s recap. Einstein assumed that there was indeed a Single Scientific Theory out there which humans could aspire to uncover and understand. If “God”, or anything else, “played dice” with its origins, then the notion of a non-random universe went out the window. Leaving aside for the moment, whether this conjecture is valid or not, consider how it would be communicated. There is little point in knowing all, if you cannot communicate the information. And here we have already come across two immediate problems, with two more still to come.

First, before this supposed Theory can be communicated to anyone else, it needs encoding, there must be a viable channel, and the recipient has to decode. Shannon and Weaver proved nothing less. Noise afflicts all three stages. It afflicts every communication human beings make, transmit or receive. So that’s the first pitfall. Human “intent” can repair this random element to a degree, perhaps to a sufficient degree, but that invokes a non-scientific component, a variable which necessarily takes itself outside any such Single Original Theory.

Second, the links in the chain of reasoning are not guaranteed. They cannot be guaranteed, since tomorrow is, by definition, different from today. Einstein may have had a lot to say about time, and its merging with space-time—but it makes no sense to say that time-future will be Absolutely the same as time-past. We know differently. And we need to stick to that knowledge.

So to the next flaw in knowledge—the First Cause. We know things because streams of cause and effect flow in a logical, reasoned fashion. If the logic chain breaks, we fail to follow the argument, and the knowledge is then not passed on, it’s lost. However, Absolute knowledge would require knowing how the whole chain started—what was its First Cause? Until we know this, then we could always find that our original premise was erroneous, and another origin needed to be found. First Causes are essential for anything that aspires to Complete Knowledge.

And here we are in trouble. Everything is already in full swing *before* we arrive. Every Scientist was young once, when the world was utterly mysterious. It may become less so with time, but where it all started is not available. Unhappily for the Einsteins of this world (who much prefer to imagine a world as fully explicable,) the common contender for our current First Cause of Everything, the Big Bang, is in peril on two counts. Firstly it’s such a long time ago that its parameters have little bearing on what we face now. And secondly, the scientific datum which gives rise to it, known as the Hubble Constant, has betrayed us by disintegrating into two separate, and irreconcilable parts. Now a “constant” which varies depending on how you ask the question, by that same token, loses validity. It’s like a busted flush. Science now divides its audience into those that believe the first method, and those the second. Only if a Constant remains Consistent can it reconcile two protagonists—something Hubble can no longer do.

Multiple Medical Causative Factors

At this stage in the argument, the attentive reader should, by rights, be feeling queasy with respect to the parlous state of knowledge—how we can know anything? As if multi-starts, wobbly causes, and overall noise were not enough, we have still to review the evidence that we live in a multi-threaded universe. With such black holes opening up on every side, a decidedly human virtue is called for—stamina. Mental stamina, stamina of the spirit, or for those more broadminded, spiritual stamina—here borrowing one of the better features of the more enlightened religions. Stamina doesn't feature in the scientific armamentarium—but it needs to, else we descend into a version of Mediaevalism, a type of scientific slum, for which the evidence is both abundant and dire.

Who would want to work in a situation where what you *know* is questioned minutely, where you are put on the spot about what you *know* is going to happen next, and hanging on your every answer are not trivial questions, but matters of life or death. Welcome to clinical medicine. Reality comes most forcefully into focus, when the question is “do you *know* if I will live?” The flaws in how we know things, do not go away, just because you have acquired a medical qualification—on the contrary, they hit you every time you walk into the clinic. So why have I found the last 60 years so fascinating? Being as deeply embedded in a clinical setting as possible, I have been enthralled, never demoralised. The simple answer lies in that miraculous mystery—“life”, and in the epochal nature of living processes.

But we have still to look at the issue of multi-threads. The contention is that all those faulty, endless chains of logic, of reasoning, are never single, but are always infinite in number. Unlike much in Science, this involves becoming personal. It can't be helped. So, since some readers may baulk at this, I shall have to step up to the mark myself, and launch into my own mini-auto-biography.

“Take a careful history of what has happened so far”—this is the axiom which is drilled into you in medical school. My favourite medical aphorism, from William Osler, is “listen to the patient s/he is telling you the diagnosis”. But how long have you got? Where should I begin? Even, *when* did I begin? Was it the day I was born, some 80 years ago? Or the day I was conceived, around 40 weeks earlier, when one energetic spermatozoa among millions, met a solitary, but viable ovum? Or was it the twinkle in my father's eye when he first beheld my mother (and vice versa)? Or, further back still, the occasion these two significant individuals (for me) first met. They would never have met at all, if both hadn't answered the call from idealistic religious (Quaker) organisers, who had also felt driven to travel to South Wales, to help beleaguered Welsh miners who at that time were suffering calamitous economic conditions. Can religious fervour therefore then be said to play a part in my origins, as well?

Note this is merely one line. Each and every one of these points could spawn an infinite number of separate, though linked, chains. My father for example, when very young, suffered wartime trauma, being shelled by Kaiser Wilhelm's warships which destroyed the lighthouse in his home town, killed people both higher up the hill from him, and lower down. He was only 4 at the time, and cowered under his parents' bed. The impact on my childhood arose because he didn't really stop cowering for the rest of his life. In many ways he was entirely capable—in some, not at all. Going further back, my genes were impacted by, of all things, *his* father's diet (Nuse, 2019). My grandfather was a Lincolnshire farmer's lad, and narrowly missed emigrating to Canada in 1901. So many factors, so much weighing up to do—who could ever work in a context in which any number of these might have a bearing, perhaps a significant bearing—even, not to put too fine a point on it, a

vital bearing?

This may seem farfetched, but I can assure you this is the staple of clinical medicine, every day, every problem. The further you go back in time, the more these apparently reasonable chains of cause and effect, multiply. Who can avoid the reality that we actually do live in a multi-threaded universe? In fact, it is rank unscientific myopia, to believe otherwise.

What this personal tale indicates is that there are an infinite number of chains of cause and effect, streaming backwards into the past for any one event. There are no exceptions. So it makes more sense to concentrate on what does work, rather than losing oneself in the gaping holes either side of a chain of reasoning. Knowledge simply cannot avoid being multi-thread, multi-start, with wobbly threads, plus noise ever threatening to drown out even the best bits.

Medical healthcare works with this every day, every minute. The hazards of Causality are silently sidestepped in clinical practice, where the suspect term itself is never used, but is replaced by the technical term “aetiology”, essentially a cluster of causative factors—never single. The central clinical task is to acknowledge all possible causes, and then to *prioritise* (using that element of wisdom again), all with adequate alacrity. You have, for example, less than 4 minutes to determine whether the victim is still breathing, or not. By and large these flaws in epistemology are effectively countered by a profession which is generally unaware of its own philosophical panache.

The word “clinic” comes from the Greek for “bed”—indicating that clinical practice occurs miles from any laboratory—you have to do the best you can, with what you’ve got. And here we may expand the word Cause, to its more crusading equivalent of “purpose”. What is the Cause you most wish to further? Expanding this more widely still, we may say that being living organisms, we, all of us, in common with the rest of the biosphere, pursue a central Cause, an overriding purpose—to remain alive, while avoiding extinction

From a philosophical viewpoint, these flaws in knowledge can simply be regarded as implementing the Second Law of Thermodynamics, which states that Entropy (disorganisation) in inanimate systems continually increases—as the electron exemplifies. But for unaccountable reasons, living processes defy this Scientific Law—they don’t disorganise, they organise—whence the name “organism”. And for as long as they continue to do so, it makes all the difference.

Criteria for a Post-Einstein Science

Just as one small pocket of religion empowered me to pursue these out-of-the-way notions, so healthcare itself bears on the underlying purpose of Science and therefore on all scientific pursuits in general, and globally. There are multiple philosophical diversions as to what is real, and what not. These are particularly attractive to Theoretical Physicists, though certain theologians are not averse to them either. It makes more sense, from a healthcare point of view, to ask how any and all notions of “reality” bear on the preservation of life and health. This gives a certain grip to the discourse, that can otherwise be lacking. And, while we are alive, it applies to every one of us without exception—we all have a Universal Absolute Incentive to defer extinction—something it pays to think more clearly about, before it is too late.

Healthcare thinking, therefore, should properly be the determined aim of every scientific endeavour, anywhere, everywhere, and at any time. Blue sky thinking is valid, and immediate connection with health may be delayed, but overall the aim of Science should be clearer to one and all, in our particular patch of the biosphere. Again this is no mere subjective supposition, nor a clandestine religious predilection—it’s just that

the Iron Law of Evolution is always waiting in the wings for any component of the biosphere (including us) who defaults on its dictates—adapt or perish. What is particularly unhealthy about Science today is that it has lost this overall component, as indicated by the fact that the only use it can find for, say, thermonuclear energy is mass extinction—including in that package is, of course, our own.

As I write this, the coronavirus is sweeping the globe. It gives extra weight to the use of healthcare as a universal human yardstick. We are in this together, whether we like to think that or not. It's all very well knowing things, knowing all manner of things—but if life is terminated because we weren't paying attention, or we neglected to honour the Iron Law, then we, by that very fact alone, forfeit our place in the biosphere—theology, Science, dogma and anything else, notwithstanding. God may, or may not play dice, but the Dodo succumbed anyway, and the evidence, such as it is, suggests we have not been supplied with effective immunity against radioactivity.

So as the virus disrupts civilisations, *The Economist* draws up three factors to help. Applying them to post-Einstein Science is instructive. The Editor wrote—

Few of today's political leaders have ever faced anything like a pandemic and its economic fallout—though some are evoking the financial crisis of 2007-09 (see article). As they belatedly realise that health systems will buckle and deaths mount, leaders are at last coming to terms with the fact that they will have to weather the storm. Three factors will determine how they cope: their attitude to **uncertainty**; the structure and competence of their **health systems**; and, above all, whether they are **trusted**. (*The Economist. Editorial. 14 March 2020*)

I have highlighted these three components, which are especially germane to this paper. Uncertainty (aka Insecurity)—this has driven otherwise sensible, realistic people to draw nonsensical, unreal conclusions. This is where that element of stamina, spiritual stamina or if you prefer mental stamina, plays a crucial, even a vital role. Uncertainty destabilises, so arguments such as those advanced above, tend to elicit more opprobrium than rational consideration.

“Health Systems” are obviously at the front line of any ability to tackle a pandemic, and always will be. But there are wider issues. It is quite reasonable to consider the “health” of that society as a whole. Where the body politic is unhealthy, then disease, by definition, will recur. China, where this particular coronavirus broke out, has been criticised for closing off free-speech, indeed for arresting and harassing the doctor, Dr Li, who first notified us of its existence. Needless delays increase fatalities.

So to the third factor *The Economist* lists—TRUST. You cannot buy trust, which makes it a different commodity from most others in our global society. You have to earn it. (Indeed, as mentioned below, you have to *learn* it—and thereby hangs a problem.) And you can easily lose it, if you fail to value it. Again the penalty for distrust is no longer some religious penance, but deterioration in health, mental health, social health, or as now, global health. Fake-news is clearly irresistible to many—though with consequences more dire than was bargained for. Above, it was noted that Science was hoped to “*explain*” *why things work the way they do, and thereby enable us all, to live happily ever after*. The overriding objective for any post-Einstein Science must therefore surely be to explain how Trust works, and undertake active measures to ensure that it does.

Another objective mentioned above is—*Science should be providing us with a human activity that is ruled, not by dogma, not by pre-judged expectations, but by what works experimentally. Stripping away some of its accretions could liberate it once again.*

Take dogma, for instance. Where does this come from? Why cling to notions that no longer work? Life survives not by being ever more rigid, but by being open to new ideas, to responding and adapting to changes in

circumstances, which whatever else it does, is an inbuilt characteristic of the world in which we live. It blows hot one minute, and cold the next. It seems all calm and collected and then a global virus erupts to put a stop to all that.

I will change my fixed notions if I receive fresh ideas from a source I can Trust. Being a single individual, I cannot be everywhere at once. I rely on a whole host of other human beings for my very survival. But some let me down. Some propagate fake-news, they seem to be born to it. I don't Trust them—and therefore they do not contribute to my healthiness, nor me to theirs.

Science is about knowing—knowing is about receiving valid news. Fake-news is not only invalid, it's unscientific, which following the above re-definition means it is also unhealthy. *The Economist* puts the point from a generally political viewpoint—I do from a healthcare perspective—the world will bear the matter out, or not—the degree to which Trust matters could have a sinister finale.

The mantra I developed for use in treating 50 murderers in Parkhurst Prison, a maximum security UK prison, was threefold—Truth, Trust and Consent. Truth should be at the heart of every scientific endeavour—and indeed in the forefront of every scientist's aim, to say nothing of everyone else's. We can never know what's real 100%—so let's keep working to get as close to that as we can, and to castigate defaulters.

The importance of Trust has been emphasised—as things become clearer, Trust comes ever more centre stage—without it, we're doomed. Consent is another of those difficult items to define, yet it forms the foundation of any health care, indeed of any healthy society, and, more, it underlies the very heart of sanity itself, to which we now turn.

The Scientific Criteria for Mental Health

Let's start where we can all agree—nothing moves without electrons. We may have to think of each electron not as a point, but as a cloud; we may puzzle how just a single one of them seems to go through two slots at the same time; or can even get “entangled” at a distance. But moving things about, that's exactly what they do. Here's the next wrinkle. I move my hand above my head. Nothing odd about that, I can do it whenever I want, and so can most people. Does it follow that this arm movement is powered by electrons? Providing the opening point in this paragraph holds good, then that conclusion is inescapable. The arm above my head got there courtesy of energetic electrons. There is no other way—scientific or otherwise.

Next, I put both arms up. Now what? Typing is not so easy in this posture, but my arms have done what I told them to. Does it follow that the electrons which mediated this movement *also* did what I told them to? You may have to hold onto your hat—but again, the conclusion seems inescapable—the electrons in my arms obey me. I have tamed electrons. It's no concern of mine that they are governed, generally, by the Uncertainty Principle—here, I impose a measure of my very own special version of Certainty. I also claim to be fully conscious, to have complete possession of my faculties, and to be as sane as ever I have been. I nevertheless cannot escape the obvious, objective, scientific fact that the electrons in my arm have done what I wanted, done what I said, done what I wished, or, just to put the point more forcefully, what I *willed* them to do. The fact that they did so via so-called “voluntary musculature”, merely adds millennia of medical wisdom to the point. Further, this element of Certainty provides a glimpse of the one and only pathway to peace of mind that we can any of us obtain (a point I expand elsewhere (Johnson, 2011; Johnson, 2016))—and that only by coordinating our “intents” with our fellow humans. Again if we don't trust them, we cannot benefit from them, nor vice

versa.

Now the sceptical reader is entitled to press the point, and ask for even more evidence. So here we call on that piece of medical equipment known as the ElectroMyoGraph (EMG). This piece of apparatus, as its name implies, detects electron activity in muscles. Strap one to my arm, and at rest, there's little going on. However, once I start lifting my hand, the thing crackles away nineteen to the dozen—electrons are moving about now, but only after I told them to.

So the sceptical scientist faces a dilemma—either the hand above my head got there by itself, or the electrons initiated the move by themselves, or it's all part of the Grand Order of Things, such that at this time in the afternoon, I am obliged to do so, by the Fully Deterministic Universe, which Einstein and others are so fond of. Personally, I prefer the simpler version—I put them there, because I *wanted* to, I *intended* to, it was something I *meant* to do. All of these verbs add colour and meaning to my world, to my life, and all are empty and meaningless to those who insist we live in a Clock Work Universe.

Now, since The Single Scientific Theory of Everything is no longer welcome, at least not in this paper, a fresh approach becomes mandatory. I cannot force nor compel you to accept that I control electrons in this way—so I am left with having to *persuade* you. To parade as many facts as I can muster, conjure up as many metaphors as suggest themselves, and then—here's the coup de grace—ask for your CONSENT.

Too many scientists withhold their consent. They maintain that behaviour is brain based, that chemical changes in the brain account for the movement of arms or of anything else. Now the chemical fact is that movement is mediated exclusively by electrons—they jump from one “orbit” to another, or from one molecule to the next—but whatever chemical you care to name, it's the electrons doing the work. So electrons are certainly at the heart of it—it's what happens *beforehand*, that matters.

There are three principle reasons why so many withhold their approval of “intent”, and of personal control of electrons in this way. First, it punctures the possibility of a Single Scientific Theory—if different participants in the biosphere, human or otherwise, can move of their own accord, then they are not being directed by Super Science. They have effectively escaped “scientific” or any other control or understanding, certainly anything remotely resembling prediction. Second, they might get up to mischief, especially the more unruly members of homo sapiens. Thirdly, so many people act without thinking, they blunder to and fro, as if controlled by something else, and freedom of action, of choice, is the last thing they appear to possess, much as they may wish for it.

Taking these three points in turn. First, there is no longer, contrary to Einstein, any possibility of a Single Scientific Theory—even if there were, there's no way you could communicate that to me, or vice versa. That we live in a Clock Work Universe is no longer sustainable. Secondly, living organisms (including ourselves) can certainly get up to mischief—but being alive, they (and we) can never escape the onerous obligation which that imposes on every component of the biosphere. Most organisms struggle to stay alive. A few elect to kill themselves, but they are the exception—most exercise their ability to adapt, their ability to respond, what you might call their “responding-abilities”, their “responsibilities”. And the penalty for irresponsibility applies to every member of the biosphere, regardless—if you respond inappropriately, if you fail to adapt to changes in your environment, then you die. And if all of us do this at the same time, then we are extinct. This fact of life is indelible, it applies whatever your belief system, whatever you may have learnt as a child, and whatever view of Science you may prefer—adapt or perish, your choice. Dead things cannot die, but every living organism can—it's the one and only Absolute Universal Truth—we ignore it at our peril.

So to the third point—so many do not believe they have freedom of action, they are pushed from pillar to post, and would very much like not to be. They behave precisely as if their brains were in charge, as if they had no control, no capacity for consent, no means of expressing any intent that they might have had. They do things which on reflection make no sense, do not answer to reason. It's as if their thinking only takes them so far, and then it runs out. They run into a brick wall. They become non-thinkers. Some, in the political sphere even celebrate this as an advantage. They function well enough in most areas, but then they hit a blind-spot, and at that point the notion that they are in control, that they have “intent” in any sense, ceases—they may even cite themselves as evidence of living in a Clock Work Universe.

Failure to acknowledge changes in circumstances, in your environment, for whatever reason, reduces your ability to adapt, to react—and for any living organism, it's invariably perilous. Health-care thinking entails finishing the line of thought, carrying out the initial “intent” until the consequences become clear. That's what thinking is for—to predict how things might turn out, so as to avoid the worst, and to continue living in the biosphere as long as we remain responsive to it.

Even a brief glance at prominent politicians shows the prevalence of non-thinking. In terms of economic policies, Krugman (2020) became so exasperated with such non-thoughts, he labelled them *Zombie economics*, i.e. policies of the living dead. Money and the cash economy have overriding emotional elements, including addictions—I discuss these further elsewhere (Johnson, 2019). Unhappily, wider examples of *Zombie politics* are currently on display in the United States, where catastrophic strategies regarding climate change are undoing global trust, and, marginally less dire, in the UK, with respect to European policy, with similar damaging effects. Worse still, is the current United States version of psychiatry—despite clear, unambiguous and entirely damning scientific data, over a 20 year period, disastrous psychiatric practice show little sign of improving. But this would require a whole library to itself (Vanheule, Breggin, Götzsche, Harrow, Whitaker).

So is there any solid, objective, scientific evidence to account for this grossly damaging non-thinking? As it happens there is, and has been since 1996. Sadly zombie-thinking has limited its circulation, unnecessarily. Twenty-four years ago, Dr Bessel van der Kolk (1996) pioneered brainscan research into how trauma impacts on cerebral tissue. Play a trauma tape to a person in a brainscan machine, and their frontal lobes and speech centre cease to function—they can neither think nor speak about their trauma. In particular they cannot bring themselves to believe that this particular trauma is over, it's stopped—it has stopped in reality, but due to their inability to process this data, to think about it, they continue to believe and therefore to behave, as if it hasn't. This brainscan evidence is objective, reproducible, scientific and irrefutable—except for those whose minds are already closed. It is common knowledge that the frontal lobes are where thinking takes place. So defects in frontal lobe activity, such as these brainscans demonstrate, bear directly on our capacity to think, our ability to work out what to do next for the best. And in particular, to bring our thinking up to date. Not easy, but astonishingly simple.

And children are easily traumatised. The human species gives birth to young who are quadriplegic—they can wave their limbs, but without adult assistance, they die. They know this. There's a prolonged infancy, during which they need to master the complexities of locomotion, the intricacies of their mother tongue, and—critically for this discussion—they need to learn what the other members of our curious species are really like. In particular, are they reliable, do they keep you warm and feed you when you are cold and hungry—and most important of all, since you have no other life-support system at that time, when your life is in jeopardy, do they save you? In a word, how TRUSTworthy are they? If less than reliable, this is a lesson which is learnt very

deeply, and is just as hard to reach.

My father offers a convenient case history. The destructive military explosions which so traumatised him, aged 4, did not last for 88 years. The bombardment ceased in 1914, but rattled on in his mind, all his life. In other less robust individuals, it could have been crippling—it often is. As far as he was concerned, it prevented him thinking straight in certain, intimate emotional areas—not life threatening, but certainly life-haunting. For example, when I told him, in 1986, about how I had found that by providing sufficient trustworthy support, this could allow traumatised individuals to kick-start their frontals and so bring themselves up-to-date, he couldn't summon enough interest either to follow what I was about, nor to apply this to himself. He was unable to access enough trustworthy support—his own frontal lobes therefore remained paralysed, at least in certain areas. Elsewhere I describe how, since cerebral inactivity from other causes, is amendable to physiotherapy, so a technique known as Verbal Physiotherapy (Johnson, 2018a), can be applied successfully to the full gamut of psychiatric disease, from anorexia, suicidality, psychotic symptoms through to murder (Johnson, 1997). I happily apply the term cure, though many closed minds disallow it.

IN SUM, the scientific criteria for mental health are—

Criterion	Scientific basis
(1) We can all grow new capabilities	New skin grows when you cut yourself—healing is impossible in a Clock Work Universe.
(2) We all need to learn trust—	Social (and other) media could help, but doesn't.
(3) Fear blocks the frontal lobes	Brainscans prove that trauma paralyses new ideas, especially obscuring criterion 1.
(4) Trust is the antidote to fear	Fear paralyses, only trust can bring it up-to-date.
(5) Without trust, childhood fears persist	All of psychiatry in three words—children are impressionable.
(6) Using trust, Verbal Physiotherapy can unblock frontals	Would you trust this, if you've never seen it work?
(7) A smile a day keeps the doctor away	This would benefit all psychiatric institutes and everyone else.

Quakerism to the Rescue

Strictly speaking that subheading should read—how Quakerism came to *my* rescue. Whether it does the same for you, is, in this non-Clock Work Universe, subject entirely to your CONSENT. This paper has now reviewed a number of points which undermine our understandings, our grasp of knowledge, and it touched on how childhood influences can stifle thinking, long into adulthood. The chief drawback is that there is no longer any compulsion that will enforce a Single All-Encompassing Solution—each of us must ferret out a viable solution for ourselves. It's called life-long learning. How far we can benefit from what others have found is determined by one overriding factor—Trust. If you don't trust the source, then whatever they might have to offer will always be suspect, and therefore to that degree, unavailable. More, without Trust, you are unlikely to Consent, so their Truth will never be there to confirm yours.

The meaning of “scientific” has been tweaked here, to embody healthcare, on the basis that every living organism, including us, wishes to continue that way. So what follows is how Quakerism has helped me to a post-Einstein view. The collapse of the Clock Work Universe means that we urgently need a workaround, something which may seem unnecessarily vague to begin with, but which delivers the goods in practice. Thus what's needed here, is not ever tighter definitions, but something which takes us deeper. We need a more nuanced approach—what matters is one that works.

The thrust of this paper is to put living processes, and the biosphere in general, back into the centre of

things, which is where we all are, and where it belongs. Thus—we are a social species. Our frontal lobes are there for an evolutionary purpose—they are our substitute for powerful jaws, claws or talons—of which we have none. Twenty homo sapiens can kill a mammoth, but only if they cooperate, communicate and trust each other—and turn their weapons outwards, not against themselves. Frontal lobes are our saving evolutionary edge, which makes their blockage dire. But what those lobes process is knowledge—and the more, the better. The less dogma, the less fake-news, the less our theories are obsolete—then the more scientific we can all be. To be “scientific” therefore, you need to be up-to-date, as accurate as possible, with items that can be shown to work *experimentally*.

And unhappily for him, Einstein is now out-of-date—courtesy of Quantum Mechanics. There’s no question that Einstein was a colossus. But then so was Newton, before him. And to say that either of them was “wrong” is to misunderstand the problem. Like all of us, they described the world as they found it and, as the foregoing arguments emphasise, every human view is only ever partial—complete knowledge is a fairy-tale, an attractive one no doubt, but not one that can survive the four counts against, described above. And, from a biosphere point of view, knowledge is only useful if, and only if, it helps you (and therefore us) survive.

Newtonian Physics was an astonishing breakthrough—it gave a rationale, a mathematical basis for moving objects, and most of all for gravity. I especially like the concept that a moving body will continue, indefinitely, until forces act on it to stop. A similar “forward motion” occurs in living organisms—they are forever moving into the future, under their own steam, until Entropy, or adverse environments curtail them. Unlike Newtonian “bodies”, they also have an intrinsic self-rectifying capacity, which if they ignore, brings them to a stop sooner than otherwise need be.

Science today, in common with many Religions, has difficulty in bringing itself up to date. The intrinsic properties of the biosphere are not fully grasped, nor is the centrality to all living organisms of The Iron Law of Evolution—adapt or perish. Scientists should look in the mirror each morning and repeat “my work is important, but loses all value, if the human race goes extinct because I didn’t respond”. (Something we might all do).

Newton assumed that because light moved, it, like all other moving objects, would gain momentum from the speed of its source. Newtonian Physics confidently predicted that faster light-sources would emit quicker light. Reality didn’t agree. In 1887, against all reasonable expectations, real practical experiments, showed that Newton’s “science” did not work (Michelson, Morley). Whatever else might be true—in our real world, light travels at the same speed however fast its source. Now it may be difficult to see how this Newtonian flaw could reduce our chances of survival—life seems to continue on, whether the speed of light varies or not—sadly the same can no longer be said of Einstein. And unless we change our scientific perspectives to encompass surviving longer, then Einstein’s flaw matters epochally, and soon.

Einstein took this new evidence-based fact of light’s speed, to heart, and thereby became more scientific, more “real”, than Newton. No one can deny this. Einstein is more accurate, more true to reality when it comes to the speed of light. Relativity represents a major upheaval in our perception of the cosmos, explaining such otherwise inexplicables as the anomaly in the orbit of Mercury and many others. None of these Herculean efforts would have been necessary, had light not misbehaved. But it did, and Einstein ran with this new idea—for which, at first, he encountered predictable and substantial opposition, until, in 1919, a Quaker astronomer proved gravity bent light (Eddington).

Time now to move on. Einstein accepted the upheaval inflicted by the extraordinary glitch in the speed of

light, but couldn't bring himself to acknowledge the even more unsettling upheaval inflicted by Quantum Mechanics. All reformations take time. Today, we are better placed. We can see that taking the Uncertainty Principle to heart allows us to develop astonishing electronics—but it does so only because we have become convinced of the intrinsic random nature of subatomic particles, a conviction Einstein didn't, or couldn't share. So what to do now? Where are the next realistic stepping stones? If the ideal of a Single Science has been permanently disqualified by Uncertain Electrons (among other things)—what way forward is there? Where can we safely go next?

Because safety is now at a premium. We have acquired enough thermonuclear equipment to obliterate all life on earth, long before climate change broils us. Like all living organisms, we must tune into what is real, what actually works in our surroundings—we can neither breathe fake-news, nor eat fantasies. Science at heart moves forward *experimentally*, by what we find actually exists out there. And that was the key word from the Early Quakers, whose lucid axiom “this I knew *experimentally*”, proved a godsend for me, in my adolescence.

So what is real? As before, health, especially illhealth, makes reality painfully clear. In fact that's what pain is for—to warn you that your current activity, your current mind-set, is reaching the limits of your responding-ability—to continue on as you are, risks worse, and in the ultimate, death. My special expertise is in mental health, and it is here, sadly, that the worst effects of misguided Science are to be found. You might have thought that the notion of a Clock Work Universe could do no harm, but visit a nearby psychiatric facility, and you'll have a rude awakening, with precious few notable exceptions.

Experimentally—i.e. check out what you do. Does what you did, *really* do what you initially wanted it to? If not—if the data undermines that—think again. If the “science” has been going on for a while (in the case of psychiatry for 40 years), then it tends to become built into the furniture, and thereby more difficult to shift. Added to which is the inescapable fact that any contrary view, such as that offered here, is similarly porous—it too has holes, gaps, unknowables—as few as I can make them, but some still remain, notwithstanding. Worse, psychiatry deals with the “mind”, and a more mysterious, fluid, amorphous, illdefined entity you will not find anywhere else in our cosmos—thank goodness—since flexibility, and the ability to think new, spontaneous, never-thought-before ideas is, or should be, our saving grace. But bear in mind that a Clock Work Universe suffocates such fluidity, at birth.

Mental Health Mediaevalisms

Since 1980, the USA has vigorously pursued a view of the mind that is decidedly mediaeval. This could be entirely acceptable, if it worked in practice. But does it? Take psychotic symptoms—by far and away the most challenging psychiatric symptom of them all—what if you could follow them up, say for 20 years, and see if your favourite treatment worked? 20 years is a long time, a huge lump out of your lifetime's career, besides being costly in terms of research funds—but if you could do it, and compare those treated, with those not, then you would have a fair indication of how appropriate your view of psychiatry was. Time to hold on to your hat again, because that's exactly what Harrow did (2014). And the difference he found between those receiving “scientifically” based treatment and those not, was not slim—it was huge. People receiving (often mandated) medication had ten times more symptoms than those not. Twice as many would be bad enough, but ten times worse—what were, and are, psychiatrists thinking?

If the flagship strategy of your entire medical speciality were holed below the waterline like this, you might at least pause, you might want to reconsider, to wonder if there wasn't a better way. Sadly, not. In the 6

years since this evidence was published in the most prestigious psychiatric journal of them all, nothing has changed—except perhaps to circle the waggons more tightly. Even a devastating review in the world newspaper, *The Economist* (2013), saying “The American Psychiatric Association’s latest diagnostic manual remains a flawed attempt to categorise mental illness” makes little impact. I suppose if you’ve reached the pinnacle of your profession, rewarded and lauded by all and sundry, especially governments, then admitting your mistakes is a challenge. As Galileo found, and Einstein (prior to 1919) too—dismissing those not “in the know”, becomes ever easier the higher your status. The more pompous the emperor, the fewer the underlings who dare tell him he has no clothes.

Under the guise of being “scientific”, psychiatry today coerces mental patients into a simplistic, mechanistic quagmire. It can only do this by clinging strenuously to the notion of living in a Clock Work Universe, and thereafter explicitly jettisoning hard earned medical wisdom, acquired over at least the last two millennia. There are three outstanding issues which appear, verbatim, in the aptly named “psychiatrist’s bible”, known by its acronym, the DSM (1980, 1994, 2013). You might have supposed that The Iron Law of Evolution was an academic foible—but here, in today’s modern “scientific” psychiatry are the entirely predictable consequences of what happens if you transgress it. They are dire. Watch.

First, all living organisms, including people with mental travails, need to react. The DSM in its illwisdom “*eliminates the term reaction*”—taking grief reaction, stress reaction, trauma reaction with it (DSM-IV, p xvii). Medical practice recognises voluntary movements, as mentioned, mediated via our voluntary musculature. It also insists that what the patient believes, thinks, does, or responds to (i.e. his or her “intent”) is of vital importance in any clinical setting, and so gives it the tag—Patient Agency. A paper entitled “The Scientific Evidence That ‘Intent’ Is Vital for Healthcare”, takes this further (Johnson, 2017). The DSM will have none of this, and whittles it away through fake-philosophy, weaving an impenetrable web around “*body-mind dualism*” (DSM-IV, p. xxi). Patient Agency, consent and “meaning”, are nowhere to be found. And as for Causality, which is so important for knowing things, especially complex matters such as insanity, the DSM even throws away the one workable version which medical wisdom offers as a substitute—aetiology—and it does so, quite explicitly—being “*neutral with respect to theories of etiology*” (DSM-IV, p. xvii). A fuller discussion of these points is provided elsewhere (Johnson, 2018b).

If and when you become aware of this psychiatric devastation in action, it would be hard to avoid seeing it as akin to bringing mud into an operating theatre—with results you can foresee, but which the high priests of psychiatry, cannot. It’s worse, because non-psychiatrists are dismissed as being ill-informed, while psychiatric experts, such as myself and many others, are labelled mavericks, and drummed out of court, as I was myself, quite literally, in January 2020 (I was forbidden from taking the expert witness stand because, so it was ruled, I had a radical website, and no longer worked in the NHS). Here we need to emphasise that these anomalies can only survive, because this aberrant branch of medicine currently clings to the myth of a Clock Work Universe. Only when that Single Science is expunged, would DSM-psychiatrists need, like everyone else, to enlist the cooperation, consent and trust of their clientele—just as all of us have always had to do, when faced with problems the size of a mammoth.

A Quaker Way With Words, Rules & Wars

So can Quakerism help? If so, how? Well, my view of Quakerism varies from time to time—just as yours does. Some of the things I’ve learnt (and keep learning) about it, I like more than others, some less—just as you

do. In other words, it's open ended—something I especially like, though not all regard this core feature as a bonus. I see it as being open to new ideas, new interpretations of past wisdoms. It is deliberately illdefined, like a plant's meristem, so as to allow for future growth. Both Einstein and Newton resort to theology to repair holes in their theories—for myself, I am content to leave the Supernatural to others—the Natural is quite awesome enough for me. Quakerism doesn't rule me out of court for this, though it does trouble some Quakers. This spiritual tolerance proved utterly indispensable for me—it allowed me to breathe, and then to appreciate quite how miraculous breathing was, and is. In addition there are two other areas where Quakerism has helped me most—the human word and our human society.

As regards words, my first appreciation that Quakerism might offer something exceptional, occurred while I was still at school, a Quaker school (since closed). Aged 11, I purchased a small pale blue booklet by an early Quaker, Isaac Penington, 1616-1679. He wrote another of those highly significant paragraphs. It opened my eyes to one of the key features of Quakerism which has stood me in such excellent stead ever since.

He that readeth these things should not strive to comprehend them, but as he grows in the Light, and the Light grows in him, the words will of themselves open unto him.

Change the word “light” to something akin to “enlighten”, and it sits more easily in the modern mind. But look at what it tells you about words. They vary. The same word can mean different things at different times. You cannot understand something, without partly experiencing it first—you need to know what the writer is talking about before you can DECODE what he or she was trying to convey. At school, at that time, I was memorising texts, repeating them verbatim to gain higher marks in my exams, and here is an authority, telling me that words change, *on their own*. Look at that phrase “*will of themselves open unto him.*” No input needed, just keep awake.

The reason this made such a profound impact on me at that young age, was because I could confirm that it was True, from my very own direct personal experience, as soon as I had read it. A bunch of words that meant little, a while ago, now took on a totally new meaning—it was not the words that had changed, it was my experience of what they referred to. This crucial insight does not say that words are useless, full of flaws. It says—pay attention, think, experience, and enlightenment will come—there's more to words than meets the eye. Humans are in charge of words, not the other way around. Words seem fixed, they seem Certain—but they vary, they crumble. And here we have a Seventeenth Century Quaker not only anticipating Shannon and Weaver by 300 years, but bringing crucial reassurance to an 11 year old school boy that I could easily grasp—unreliable words are not the end of the matter—life continues, just keep on.

I deployed this Quaker insight that humans control words, and their assorted meanings, to develop a numerical shorthand for every medical symptom that passed through a family doctor's hands in a decade. I used this to earn a PhD in medical computing, describing 40 years ago how a computer, such as today's smart phone, could screen every item in your entire medical history, and then compare this in microseconds, with the latest updated global data on the drug you were about to receive (Johnson, 1980). Without insight into human mastery of verbal (and/or numeric) symbols, and despite the current ubiquity of multi-menu touch screens, this clinical innovation remains a computerised pipe-dream.

Finally what does Quakerism say about what to do next—which is the crux of every clinical, indeed every moral challenge? It's all very well reasoning about what people did long ago, but what about today? What about now? There's a splendid Quaker aphorism—“the time is now, and now is sacred”. Sounds uplifting, but

it doesn't tell you what "sacred" means. No, that is its invaluable, hidden, treasure. You and we have to find that out for ourselves. We think, and then we do. What we do depends on what we believe, which in turn relies on what we know. What we *know* comes from a most unexpected source—TRUST. An untrustworthy source promises rank ignorance, or worse. Only a trusted enlightener can dissolve dogmas.

Take the notion of Truth—it's a crucial asset for all living things, if they (or we) want to live longer. Get it wrong, and you can no longer adapt or respond to what's happening around you—which is why it's vital. But Truth is never 100%, it continually grows out of date, merely with the passage of time—Entropy is forever encroaching on our surroundings, our beliefs, our activities. More, there are almost as many truths as there are people—not quite, but nearly. And here's the twist—we cannot be everywhere at once, so we need to rely on other people's Truth—that's the essence of Trust. In a nutshell—Trust is relying on another's Truth. But can you trust them? If you can't, then their knowledge is not available to you—and if frontal blockages persist, and you've never been taught how to trust, then ignorance, kindergarten-ignorance, prevails, without relent.

So here's the next crucial Quaker jewel. Knowledge, as this paper labours to point out, is flawed. Relying on a Clock Work Universe to put a solid foundation beneath everything we know or might know—is similarly, no longer going to answer. It doesn't work out *experimentally*. So what does? Time for the last significant paragraph, which speaks volumes.

Dearly beloved Friends, these things **we do not lay upon you as a rule or form to walk by**, but that all, with the measure of light which is pure and holy, may be guided; and so in the light walking and abiding, these may be fulfilled in the Spirit, not from the letter, for the letter killeth, but the Spirit giveth life. (*The Balby Elders, 1656, emphasis added*).

This epochal advice comes as a post-script to a long, censorious letter about what you should and shouldn't do. The letter itself lays down the law as those particular Early Quakers saw it. But look at what they end with—"it's up to you". This shifts the responsibility for defining the "good life" from a set of rules, on to how you, personally, are going to interpret those guidelines—and it's this, this rebalancing of responsibilities, which is such a treasure. (It's also a crucial part of every parent's obligation.) These Early Quakers had enough confidence, spiritual confidence if you like, that *you* would find the truth in their nostrums, *experimentally*. Their task was only to point you in the right direction—thinking things through would do the rest, would bring you enlightenment all by itself, just as Isaac Penington promised it would.

In a nutshell, this is a bold and confident prescription that you place Trust in the audience, in the congregation, in your peers—something too few religions (or any other social units) achieve. Of course some people let you down, some even seem to insist on doing so—they don't seem to know any better, they appear to be working to a different tune, to take a delight in messing things up, in leaving them in a worse state than they were before. Child-tantrums in infancy-frozen adults. Irresponsibilities writ large.

It's all to do with Trust. Trust is a most peculiar commodity, it thrives when it's working, and withers when it's not. Distrust is like an infectious disease—it's contagious. For a century Hollywood has been teaching distrust, nowadays video games do the same. So no wonder President Trump trusted no one—everything's a hoax—except, his fellow bully-boys (sic), relishing their high jinks while teacher's (and experts') back is turned. Even US Senators approve.

Wars make perfect sense in badly run kindergartens, but nowhere else. In unsupervised nurseries, a toddler who is stronger, better weaponised than you, will always win. If she or he wants your favourite toy, and there are no adults around to stop him or her—then it's gone, and there's precious little you can do about it, except

waste the rest of your time plotting revenge, another infant based quasi-tantrum. Or, you could grow up. Trouble is, you need adequate supplies of Trust, abundantly available, to do that. And, sadly, you cannot pick up a belief in Trust by yourself—you need to see it in action, you need to see that it is a fruitful activity—you need to *trust* it—never easy when you’ve never seen it work, never been invited to do so.

Trust too often proves to be the weakest link in human relations—sad, really, since when the chips are down, it is the only source of strength there is. Trust is the only glue that can hold people together. Only extraordinary and ample Trust can unfreeze frontal blockages. Without Trust, individual humans are chicken-headed—and this, coupled with our built in child-neglect-revenge, ensures that self-extinction looms.

In November 1660, a posse of Quakers told the English King that violence didn’t work. Where on earth did this come from? What lay behind it? Was it cowardice, or a deeper understanding of where a more grown-up human society should really be heading? For five years, I talked to 50 murderers in Parkhurst Prison, persuading them that their horrendous childhoods were now over, so could safely be left in the past—that though anger could be healthy, violence never was. Violence is infantile. “Scientific” psychiatry insists “psychopaths” can never change. But for three years, violence vanished from one maximum security prison wing, with zero alarm bells rung, down from 20 every year, for the previous seven. What these killers taught me was that only over-grown toddlers kill—a line too heretical for today’s “scientific” psychiatry.

But the main thing those 50 murderers taught me, is that Trust has to be learnt in infancy—if it’s not, the world becomes dominated by over-grown toddlers—look around you today. More, they proved to me that Trust *can* be taught. Once they knew what Trust was, and believed in it, they discovered that, to remain “safe”, they no longer needed to kill, any more—something we all need to learn. And soon.

Additionally, attentive reading of the verbatim dialogues of a serial killer (Johnson, 2018a) can reveal why you cannot escape your very own childhood terrors, until you learn to trust, of all people, *yourself*. Trust insinuates itself into every cranny of the human mind—it bridges the chasm between the stability of our mental worlds, and that of the real world in which we all live, today. Simple—but far, far from easy.

In Conclusion

If you Consent to follow these arguments to their logical end point, the one factor which emerges as the most crucial, the most vital, is covered by a simple five letter word—TRUST. Looked at from a healthcare perspective then, Trust becomes the panacea for all mental illhealth, all social harm (including all wars), and therefore indeed, for our very global survival—high time Science evaluated it, highlighted defaulters, and built it up globally. This is a novel scientific perspective which pivots us all back into the biosphere—what would it take for you to *trust* it?

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Scientific American is the essential guide to the most awe-inspiring advances in science and technology, explaining how they change our understanding of the world and shape our lives. Right. So which aspect of your work do you think is most relevant to the Templeton Foundation's spiritual aims? Probably my belief in humility. I believe we should take a much humbler approach to knowledge, in the sense that if you look carefully at the way science works, you'll see that yes, it is wonderful " magnificent! " but it has limits. And we have to understand and respect those limits. Why are you against atheism? I honestly think atheism is inconsistent with the scientific method. What I mean by that is, what is atheism? Quakerism says " there's more to life than words. In his book, *The Future Of An Illusion*, Sigmund Freud used "science" to demolish "religion". Reading this, as a teenager in a Quaker school, set the cat among the Quaker pigeons " was Quakerism equally doomed? At that time, "science" was transcendent. "God" less so. The postal service shows why. You can time your parcel's departure, to the nearest femtosecond " but heaven only knows when it'll arrive. And there's no room on an electron for a tracking device, nor ever will be. Is Quakerism that different? Can Quakerism really step in to repair "science"? Well, it did for me. The "work-around" it gave me was to pay more attention to what worked, rather than to the words used to describe it. THINKING cannot occur without electrons, a point philosophically, scientifically and irrefutably confirmed for all, by the Electroencephalogram (EEG). However for 100 years, electrons and their ilk have scrupulously obeyed the Uncertainty Principle. Probability rules. The way human beings reason is by concluding that if event B is seen to follow cause A, it will do so again tomorrow " electrons don't even support this today. Hume's critique of causality which Kant failed to refute, gains traction from Quantum Mechanics. "The Scientific Evidence That "Intent" Is Vital for Healthcare" written by Bob Johnson, published by *Open Journal of Philosophy*, Vol.7 No.4, 2017. has been cited by the following article(s): Google Scholar. CrossRef. [1].