publication of *The Field*, the meaning of this book is different for every reader. Nevertheless, everyone has understood that its central thrust is the hope of new possibility. At a time when the old scientific story, with its emphasis on technical mastery of the universe, threatens our planet with extinction, *The Field* offers an alternative future. Mainstream science has grown ever more fundamentalist, dominated by a few highly vocal scientists who believe that our scientific story has largely been completed. Nevertheless, a small body of resistance carries on in defiance of this restricted view. With every unorthodox question asked, with every unlikely answer, frontier scientists such as those featured in *The Field* remake our world. May they and their ilk light our way.

LYNNE MCTAGGART,
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PROLOGUE

The Coming Revolution

WE ARE POISED ON the brink of a revolution – a revolution as daring and profound as Einstein's discovery of relativity. At the very frontier of science new ideas are emerging that challenge everything we believe about how our world works and how we define ourselves. Discoveries are being made that prove what religion has always espoused: that human beings are far more extraordinary than an assemblage of flesh and bones. At its most fundamental, this new science answers questions that have perplexed scientists for hundreds of years. At its most profound, this is a science of the miraculous.

For a number of decades respected scientists in a variety of disciplines all over the world have been carrying out well-designed experiments whose results fly in the face of current biology and physics. Together, these studies offer us copious information about the central organizing force governing our bodies and the rest of the cosmos.

What they have discovered is nothing less than astonishing. At our most elemental, we are not a chemical reaction, but an energetic charge. Human beings and all living things are a coalescence of energy in a field of energy connected to every other thing in the world. This pulsating energy field is the central engine of our being and our consciousness, the alpha and the omega of our existence.

There is no 'me' and 'not-me' duality to our bodies in relation to the universe, but one underlying energy field. This field is responsible for our mind's highest functions, the information source guiding the growth of our bodies. It is our brain, our heart, our memory – indeed, a blueprint of the world for all time. The field is the force, rather than germs or genes,

that finally determines whether we are healthy or ill, the force which must be tapped in order to heal. We are attached and engaged, indivisible from our world, and our only fundamental truth is our relationship with it. 'The field,' as Einstein once succinctly put it, 'is the only reality.'[1]

Up until the present, biology and physics have been handmaidens of views espoused by Isaac Newton, the father of modern physics. Everything we believe about our world and our place within it takes its lead from ideas that were formulated in the seventeenth century, but still form the backbone of modern science – theories that present all the elements of the universe as isolated from each other, divisible and wholly self-contained.

These, at their essence, created a world view of separateness. Newton described a material world in which individual particles of matter followed certain laws of motion through space and time – the universe as machine. Before Newton formulated his laws of motion, French philosopher René Descartes had come up with what was then a revolutionary notion, that we – represented by our minds – were separate from this lifeless inert matter of our bodies, which were just another type of well-oiled machine. The world was composed of a load of little discrete objects, which behaved predictably. The most separate of these was the human being. We sat outside this universe, looking in. Even our bodies were somehow separate and *other* from the real us, the conscious minds doing the observing.

The Newtonian world might have been law-abiding, but ultimately it was a lonely, desolate place. The world carried on, one vast gearbox, whether we were present or not. With a few deft moves, Newton and Descartes had plucked God and life from the world of matter, and us and our consciousness from the center of our world. They ripped the heart and soul out of the universe, leaving in its wake a lifeless collection of interlocking parts. Most important of all, as Danah Zohar observed in *The Quantum Self*, 'Newton's vision tore us out from the fabric of the universe.'[2]

Our self-image grew even bleaker with the work of Charles Darwin. His theory of evolution – tweaked slightly now by the neo-Darwinists – is of a life that is random, predatory, purposeless and solitary. Be the best or don't survive. You are no more than an evolutionary accident. The vast checkerboard biological heritage of your ancestors is stripped down to one central facet: survival. Eat or be eaten. The essence of your humanity is a genetic terrorist, efficiently disposing of any weaker links. Life is not about sharing and interdependence. Life is about winning, getting there first. And if you do manage to survive, you are on your own at the top of the evolutionary tree.

These paradigms – the world as machine, man as survival machine – have led to a technological mastery of the universe, but little real knowledge of any central importance to us. On a spiritual and metaphysical level, they have led to the most desperate and brutal sense of isolation. They also have got us no closer to understanding the most fundamental mysteries of our own being: how we think, how life begins, why we get ill, how a single cell turns into a fully formed person, and even what happens to human consciousness when we die.

We remain reluctant apostles of these views of the world as mechanized and separate, even if this isn't part of our ordinary experience. Many of us seek refuge from what we see as the harsh and nihilistic fact of our existence in religion, which may offer some succour in its ideals of unity, community and purpose, but through a view of the world that contradicts the view espoused by science. Anyone seeking a spiritual life has had to wrestle with these opposing world views and fruitlessly try to reconcile the two.

This world of the separate should have been laid waste once and for all by the discovery of quantum physics in the early part of the twentieth century. As the pioneers of quantum physics peered into the very heart of matter, they were astounded by what they saw. The tiniest bits of matter weren't even matter, as we know it, not even a set *something*, but sometimes one thing, sometimes something quite different. And even stranger, they were often many possible things all at the same time. But most significantly, these subatomic particles had no meaning in isolation, but only in relationship with everything else. At its most elemental, matter couldn't be chopped up into self-contained little units, but was completely indivisible. You could only understand the universe as a dynamic web of interconnection. Things once in contact remained always in contact through all space and all time. Indeed, time and space themselves appeared to be arbitrary constructs, no longer applicable at this level of the world. Time and space as we know them did not, in fact, exist. All that appeared, as far as the eye could see, was one long landscape of the here and now.

The pioneers of quantum physics – Erwin Schrödinger, Werner Heisenberg, Niels Bohr and Wolfgang Pauli – had some inkling of the metaphysical territory they had trespassed into. If electrons were connected everywhere at once, this implied something profound about the

nature of the world at large. They turned to classic philosophical texts in their attempt to grasp the deeper truth about the strange subatomic world they were observing. Pauli examined psychoanalysis and archetypes and the Qabbalah; Bohr, the Tao and Chinese philosophy; Schrödinger, Hindu philosophy; and Heisenberg, the Platonic theory of ancient Greece.[3] Nevertheless, a coherent theory of the spiritual implications of quantum physics remained beyond their grasp. Niels Bohr hung a sign on his door saying 'Philosophers keep out. Work in progress.'

There was other, quite practical, unfinished business with quantum theory. Bohr and his colleagues only got so far in their experiments and understanding. The experiments they'd conducted demonstrating these quantum effects had occurred in the laboratory, with non-living subatomic particles. From there, scientists in their wake naturally assumed that this strange quantum world only existed in the world of dead matter. Anything alive still operated according to the laws of Newton and Descartes, a view that has informed all of modern medicine and biology. Even biochemistry depends upon Newtonian force and collision to work.

And what of us? Suddenly, we had grown central to every physical process, but no one had fully acknowledged this. The quantum pioneers had discovered that our involvement with matter was crucial. Subatomic particles existed in all possible states until disturbed by us – by observing or measuring – at which point, they'd settle down, at long last, into something real. Our observation – our human consciousness – was utterly central to this process of subatomic flux actually becoming some set thing, but we weren't in any of the mathematics of Heisenberg or Schrödinger. They realized that we were somehow key, but they didn't know how to include us. As far as science was concerned, we were still on the outside looking in.

All the loose strands of quantum physics were never tied up into a coherent theory, and quantum physics got reduced to an extremely successful tool of technology, vital for making bombs and modern electronics. The philosophical implications were forgotten, and all that remained were its practical advantages. The rank and file of today's physicists were willing to accept the bizarre nature of the quantum world at face value because the mathematics, such as the Schrödinger equation, works so well, but shook their heads at the counter-intuitiveness of it all.[4] How could electrons be in touch with everything at once? How could an electron not be a set single thing until it is examined or measured? How, in

fact, could anything be concrete in the world, if it was a will o' the wisp once you started looking closer at it?

Their answer was to say that there was a single truth for anything small and another truth for something much bigger, one truth for things that were alive, another for things that weren't, and to accept these apparent contradictions just as one might accept a basic axiom of Newton's. These were the rules of the world and they should just be taken at face value. The math works, and that's all that counts.

A small band of scientists dotted around the globe was not satisfied to simply carry on with quantum physics by rote. They required a better answer to many of the large questions that had been left unanswered. In their investigations and experimentation, they picked up where the pioneers of quantum physics had left off, and they began probing deeper.

Several thought again about a few equations that had always been subtracted out in quantum physics. These equations stood for the Zero Point Field – an ocean of microscopic vibrations in the space between things. If the Zero Point Field were included in our conception of the most fundamental nature of matter, they realized, the very underpinning of our universe was a heaving sea of energy – one vast quantum field. If this were true, everything would be connected to everything else like some invisible web.

They also discovered that we were made of the same basic material. On our most fundamental level, living beings, including human beings, were packets of quantum energy constantly exchanging information with this inexhaustible energy sea. Living things emitted a weak radiation, and this was the most crucial aspect of biological processes. Information about all aspects of life, from cellular communication to the vast array of controls of DNA, was relayed through an information exchange on the quantum level. Even our minds, that *other* supposedly so outside of the laws of matter, operated according to quantum processes. Thinking, feeling – every higher cognitive function – had to do with quantum information pulsing simultaneously through our brains and body. Human perception occurred because of interactions between the subatomic particles of our brains and the quantum energy sea. We literally resonated with our world.

Their discoveries were extraordinary and heretical. In a stroke, they had challenged many of the most basic laws of biology and physics. What they may have uncovered was no less than the key to all information processing

and exchange in our world, from the communication between cells to perception of the world at large. They'd come up with answers to some of the most profound questions in biology about human morphology and living consciousness. Here, in so-called 'dead' space, possibly lay the very key to life itself.

Most fundamentally, they had provided evidence that all of us connect with each other and the world at the very undercoat of our being. Through scientific experiment they'd demonstrated that there may be such a thing as a life force flowing through the universe – what has variously been called collective consciousness or, as theologians have termed it, the Holy Spirit. They provided a plausible explanation of all those areas that over the centuries mankind has had faith in but no solid evidence of or adequate accounting for, from the effectiveness of alternative medicine and even prayer to life after death. They offered us, in a sense, a science of religion.

Unlike the world view of Newton or Darwin, theirs was a vision that was life-enhancing. These were ideas that could empower us, with their implications of order and control. We were not simply accidents of nature. There was purpose and unity to our world and our place within it, and we had an important say in it. What we did and thought mattered – indeed, was critical in creating our world. Human beings were no longer separate from each other. It was no longer us and them. We were no longer at the periphery of our universe – on the outside looking in. We could take our rightful place, back in the center of our world.

These ideas were the stuff of treason. In many cases, these scientists have had to fight a rearguard action against an entrenched and hostile establishment. Their investigations have gone on for thirty years, largely unacknowledged or suppressed, but not because of the quality of the work. The scientists, all from credible top-ranking institutions – Princeton University, Stanford University, top institutions in Germany and France – have produced impeccable experimentation. Nevertheless, their experiments have attacked a number of tenets held to be sacred and at the very heart of modern science. They did not fit the prevailing scientific view of the world – the world as machine. Acknowledging these new ideas would require scrapping much of what modern science believes in and, in a sense, starting over from scratch. The old guard was having none of it. It did not fit the world view and so it must be wrong.

Nevertheless, it is too late. The revolution is unstoppable. The scientists who have been highlighted in *The Field* are merely a few of the pioneers, a small representation of a larger movement.[5] Many others are right behind them, challenging, experimenting, modifying their views, engaged in the work that all true explorers engage in. Rather than dismissing this information as not fitting in with the scientific view of the world, orthodox science will have to begin adapting its world view to suit. It is time to relegate Newton and Descartes to their proper places, as prophets of a historical view that has now been surpassed. Science can only be a process of understanding our world and ourselves, rather than a fixed set of rules for all time, and with the ushering in of the new, the old must often be discarded.

The Field is the story of this revolution in the making. Like many revolutions, it began with small pockets of rebellion, which gathered individual strength and momentum – a breakthrough in one area, a discovery somewhere else – rather than one large, unified movement of reform. Although aware of each other's work, these are men and women in the laboratory, who often dislike venturing beyond experimentation to examine the full implications of their findings or don't always have the time necessary to place them in context with other scientific evidence coming to light. Each scientist has been on a voyage of discovery, and each has discovered a bucket of earth, but no one has been bold enough to declare it a continent.

The Field represents one of the first attempts to synthesize this disparate research into a cohesive whole. In the process, it also provides a scientific validation of areas which have largely been the domain of religion, mysticism, alternative medicine or New Age speculation.

Although all of the material in this book is grounded in the hard fact of scientific experimentation, at times, with the help of the scientists concerned, I've had to engage in speculation as to how all this fits together. Consequently, I must stress that this theory is, as Princeton Dean Emeritus Robert Jahn is fond of saying, a work in progress. In a few instances, some of the scientific evidence presented in *The Field* has not yet been reproduced by independent groups. As with all new ideas, *The Field* has to be seen as an early attempt to put individual findings into a coherent model, portions of which are bound to be refined in future.

It is also wise to keep in mind the well-known dictum that a right idea can never get definitively proven. The best that science can ever hope to achieve is to disprove wrong ideas. There have been many attempts to

discredit the new ideas elaborated in this book by scientists with good credentials and testing methods, but thus far, no one has been successful. Until they are disproven or refined, the findings of these scientists stand as valid.

This book is intended for a lay audience, and in order to make quite complicated notions comprehensible, I've often had to reach for metaphors which represent only a crude approximation of the truth. At times, the radical new ideas presented in this book will require patience, and I cannot promise that this will always be an easy read. A number of notions are quite difficult for the Newtonians and Cartesians among us, accustomed as we are to thinking of everything in the world as separate and inviolate.

It is also important to stress that none of this is my discovery. I am not a scientist. I am only the reporter and occasionally the interpreter. The plaudits go to the largely unknown men and women in the laboratory who have unearthed and grasped the extraordinary in the course of the everyday. Often without their even fully comprehending it, their work transformed into a quest for the physics of the impossible.

Lynne McTaggart
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Part 1

The Resonating Universe

Now I know we're not in Kansas.

Dorothy, *The Wizard of Oz*