Prologue

If you were to try to borrow a large block of gold with the object of placing it in a position of rest in a wooden shack in an isolated field remote from intruding electromagnetic effects in order then to see if you could detect how it might react to that state of peaceful isolation, it is likely that you would be regarded as somewhat crazy.

Yet, truth being stranger than fiction, someone who was not crazy did succeed with such a request with the object of performing an experiment which should have helped us to understand the link between gravitation and electrical phenomena that is governed by the quantum underworld that permeates all space.

However, where gravity is concerned, along with its role in the creation of our universe, fiction has come to dominate and truth is not part of the equation. So there is need for correction.

To discover the physical truth about creation we need what has been termed *The Theory of Everything* and so, in Part I of this work, we will review that experiment involving the block of gold and explain why it is important. We shall point to a feature that was overlooked and which, once taken into account, guides us to a true understanding of the very nature of the force of gravity. This gives us an entry point to understanding the dynamics of the space medium and the link between gravity and fundamental particle forms, leading then to the formulae from which G, Newton's constant of gravitation, can be deduced theoretically in terms of the measured electrical charge to mass ratio of the electron.

Thus we will in Part I alone have achieved the main objective required of a so-called *Theory of Everything*, but, science being ever-demanding, it will need Part II to cover more on the fundamental particle theme and the related link with quantum theory. Then, since everything includes energy, an energy source that somehow created our universe, and we face a future of diminishing energy resource

unless we can somehow uncover and exploit that hidden source of energy, Part III will seek also to embrace that subject in this account of *The Theory of Everything*.

It will then be for the reader to decide if what has been disclosed has that 'ring of truth' needed to overcome the fiction of Big Bang creation and an expanding universe.

Note, however, that this text is intended to be read by the general reader having an interest in science, a moderate understanding of physics and some basic mathematics.

It is a concluding brief account of the author's efforts over 50 years to decipher in physical terms Nature's messages, as coded in the numerical values of the fundamental physical constants. The result has revealed evidence that challenges many astrophysical notions but warrants attention as it may well reveal how to bring that omnipresent energy source into the realm of technology at a time when it is most needed.

The author's earlier published work, mainly in the form of scientific papers and privately published items, is of reference on the author's website www.aspden.org and, besides addressing many related topics, provides detailed support for much that is here disclosed.

Before presenting Parts I, II and III we will, however, begin, as Chapter 1, with a short historical discourse which puts a little emphasis on Cambridge and Trinity College there, in particular, this being Isaac Newton's seat of learning and his discovery of the law of gravitation being the obvious foundation for a *Theory of Everything*.

Chapter 1

HISTORICAL INTRODUCTION

Whilst most of us beings on Earth have enough problems to contend with in our daily life without pondering on the great mysteries of science we are nevertheless aware that religion has a powerful influence on our existence. Yet religion and a belief in God, as the creator and governor of our universe, tell us little that is credible concerning how stars, and our Sun, with its planets including Earth, were created. It is all a great mystery but the word 'God' has meaning, in that it stirs an intellectual challenge, that of understanding as much as we can about our existence and the forces of nature that account for what we see and sense as this, our universe. This is the realm of science, rather than religion.

Our history tells us that besides those who ruled and governed there were those who claimed a special insight into the great mysteries of our existence and evolved religious beliefs leading to doctrinaire principles and the foundation of churches of various denominations. Sadly, the concept of God as the Creator then became an inflexible fixation in many of those religions and was not something that could evolve as we discovered more concerning the truths of nature.

This even led to us having seats of learning where one could pursue an understanding of those truths and advance in solving some of nature's mysteries, but which nevertheless demanded commitment to a particular belief in God in order to conserve the authority of those in power in the related religious community.

The search for truth by deciphering what we see by looking into the sky at night, or experience here on Earth, a search arising

from our curiosity concerning why we exist and how everything we can see was created, became a preoccupation warranting general concern, but history records only the efforts of the very few who did guide us along the forward path.

Galileo (1564-1642) was such a pioneer, an intellectual giant in his time, discovering the law of motion of falling bodies, who, though having been a medical student at the University of Pisa, gave up the study of medicine for mathematics and later made many astronomical discoveries, especially the resolution of the Milky Way into innumerable stars. Yet, when he published his findings and eventually his *Dialogue on the Two Chief World Systems* he found he had to stand trial for his views. He had encountered the displeasure of the Church of Rome.

Isaac Newton (1642-1727), who discovered the law of gravity, entered Trinity College, Cambridge in 1660 and even as an undergraduate appears to have had some conception of a universal force which could account for all motion and as the years passed so this idea came to dominate his thoughts. He then left Cambridge temporarily, just after gaining his degree in 1665, the university and its colleges having to close for two years owing to the plague, but he returned in 1668 to take up the Fellowship to which Trinity College had elected him. In due course, in 1687 he produced his monumental work of the *Principia* but then found himself representing his university as a member of Parliament, where he took his seat in 1689. It is doubtful that religious pressures influenced or limited his scientific pursuits, but after 1704 when he had published his *Opticks,* he did become increasingly occupied with theological speculations.

In a sense one could say that science, particularly the field of astronomy, arouses interest in questions which are of a theological nature and one could wonder whether science, as it evolves, might even become a religion in its own right.

With that thought in mind, and advancing another century, we could take stock of scientific knowledge at the time of Reverend William Whewell (1794-1866), the author of many philosophical,

mathematical and scientific works, and particularly, in 1858, his *Novum Organon Renovatum* in which he set forth a nineteenth-century revision of scientific method.

Whewell became Master of Trinity College, Cambridge in 1841 and Vice-Chancellor of the University in 1842, so it is not surprising to learn that a section of Trinity College is named Whewell's Court. As a research student at Trinity College I had rooms in Whewell's Court (1952-53) which accounts for why, years later, I bought a book bearing Whewell's name that I saw in a second hand bookshop. It was entitled *Astronomy and General Physics*, being a sixth edition dated 1837, the first edition having been written in 1833. The book affords an interesting insight into scientific knowledge of that period. It had a longer title on its opening page: *Astronomy and General Physics Considered with Reference to Natural Theology*.

The first words of its Chapter 1 read:

> "The examination of the material world brings before us a number of things and relations of things which suggest to most minds the belief of a creating and presiding Intelligence."

Then two pages later, one reads:

> "Our knowledge of nature is our knowledge of laws; of laws of operation and connexion, of laws of succession and co-existence, among the various elements and appearances around us. And it must therefore here be our aim to show how this view of the universe falls in with our conception of the Divine Author, by whom we hold the universe to be made and governed."

One can see from this that the quest to discover *The Theory of Everything* is not a just a pursuit dating from the 20th century. In our modern scientific terminology we do not refer to God in such a way. Our interest is just in the connections between physical phenomena and formulating rules or laws which experiment and observation seem to suggest, but we do not declare these to be the

handiwork of an all-powerful deity. Defining the word 'God' in the context of our universe needing a creator does give that word physical meaning but, however much we learn about science and the extent of our universe, we are limited to linking phenomena in a logical way and can never fathom how and why the vastness of space exists and how it came to contain energy from which matter has formed.

Isaac Newton gave us an insight into the force of gravity and, judging by what Whewell wrote on the subject of gravity more than a century after Newton's decease, there had been no advance in understanding the true nature of that fundamental force which affects us all. It keeps us on body Earth and we do not know why.

Whewell's book comprised 381 pages, of which three pages sufficed to cover the 'Laws of Electricity' with another three pages describing what was then known about the 'Laws of Magnetism'. Neither the contemporary researches of Ampere nor those of Michael Faraday (1791-1867) had, it seems, become sufficiently known to warrant comment. Even the findings of C. A. de Coulomb (1736-1806) and Henry Cavendish (1731-1810) were not mentioned. Cavendish had, in 1798, made the first successful measurement of the constant of gravitation *G* by tests on the interaction of two heavy bodies. Historical records also show that, although Coulomb is credited with the experimental verification of the inverse-square law of electrostatic charge interaction, Cavendish had performed the same experiment some ten years before Coulomb but had not seen fit to publish his findings.

Electricity is seems was better known from Benjamin Franklin's encounter with lightning by his kite experiment in exploring the electricity in the atmosphere. In discussing that Whewell was concerned with lightning and thunderbolts as conveying the idea of a superior and mighty power manifesting 'displeasure and threatening punishment', these 'destructive agents being part of a great scheme, of which every discoverable purpose is marked with beneficence as well as wisdom'.

Of magnetism Whewell first stressed its vast service to man 'by supplying him with that valuable instrument the mariner's compass'. Then he noted that magnetism has been discovered in modern times to have so close a connexion with galvanism, that they may be said to be almost different aspects of the same agent. 'All the phenomena which we can produce with magnets, we can imitate with coils of galvanic matter.' After then stating that 'the Aurora Borealis, probably an electrical phenomenon, is said, under specific circumstances, to agitate the magnetic needle', he linked this with the electrical properties of the atmosphere and concluded that 'magnetism belongs to the same system of beneficial contrivance to which electricity has already been traced'. Then came the summary statement, one which has proved to be true prophecy:

> "We see, however, on this subject very dimly and a very small way, It can hardly be doubted that magnetism has other functions than those we have noticed."

Such therefore was the wisdom of someone who would, within four years, in 1841, become Master of Trinity College, Cambridge. On the subject of aether which no book on physics written in the 19th century could ignore, Whewell also devoted just three pages to that topic. He wrote:

> "The ether is not only the vehicle of light, but has also laws, at present unknown, which connect it with heat, electricity and other agencies."
>
> "All analogy leads us to suppose that if we knew as much of the constitution of the luminiferous ether as we do about the constitution of our atmosphere, we should find it a machine as complex and artifical, as skilfully and admirably constructed. We know at present very little indeed of the construction of this machine."
>
> "If the earth had no atmosphere, or if the world had no ether, all must be inert and dead. Who constructed these three extraordinarily complex pieces of

> machinery, the earth with its productions, the atmosphere, and the ether? Who fitted them into each other in many parts, and thus made it possible for them to work together? We conceive there can be but one answer; a most wise and good God."

Now, as we well know, by the end of the 19th century we knew enough about electricity to see the beginnings of a world dependent upon electricity for power and light such as could not have been imagined in Whewell's time. Thanks to Clerk Maxwell (1831-79), we also knew that the aether was electrical in nature and could store energy by displacement of its charge.

Let me now digress a little to draw attention to something I wrote on the subject of the aether, my book *Modern Aether Science* published in 1972. On page 87 of that work I wrote:

> "So much of physics depends upon the interaction of electric charge that you just have no way of founding physical theories of Nature if you set out with the wrong law of electrodynamics. Care is needed because physicists are human and they make mistakes. Everyone makes mistakes, and it is particularly easy in theoretical research. The researcher is setting off on a journey in the dark along an uncharted road. If he gets lost, he has no one to put him back on the right track until someone else comes down the same road, goes back, finds a better road and bothers to come back again to collect the lost soul. All this takes time, centuries of time, and with so many people rushing around, all lost at once, the chances of sorting things out are reducing rather than increasing. But there is an added difficulty. There are those who go along the right road and come back to invite others to follow. Yet they will not follow because someone already out of reach has assured everyone that he has explored that same path and found nothing. There is imperfect recollection of what he really reported but it still

> daunts the willingness to believe the more favourable reports. Such is the world of the physicist unless he is a recognized explorer of the jungle and can take a large following with him wherever he may go."

This was followed by a paragraph beginning with the words:

> "I am, incidentally, thinking of certain characters and experiences of my own in putting together the above observations. The man now out of reach is the Reverend Samuel Earnshaw (1805-1888). He left behind him an interesting proposition, generally referred to as Earnshaw's theorem. According to this theorem, an isolated electric charge cannot remain in stable equilibrium under the action of electrostatic forces only. I found my papers being rejected because my discoveries were in conflict with Earnshaw's law. Hence the question: 'Who was Earnshaw?' ...."

Well, having in mind that Whewell, at Cambridge at the time, had so little say about the aether and its electrical composition, here was the Reverend Samuel Earnshaw in Cambridge, reading a paper before the Cambridge Philosophical Society in 1839 on the subject of the electrical constitution of the aether. His paper was published in the *Transactions* of that Society at pp. 77-114 in volume 7, 1842. It was entitled: '*On the Nature of the Molecular Forces which regulate the Constitution of the Luminiferous Ether'*. Earnshaw claimed to prove that the aether could not constitute electric charges retained in a relatively stable configuration, if the forces acting between them are of the usual inverse square of distance form.

At that time there had already been significant progress in understanding what was destined to be the underworld of space that is the basis of modern quantum theory, but Earnshaw killed that vision and did so because he had overlooked something of major significance. I discovered this, as did W.T. Scott who wrote a paper entitled '*Who was Earnshaw?*' published in the *American Journal of Physics* in 1959 (volume **27**, p. 418), but the damage had been done back in the mid 19th century, when physicists were deflected

away from pursuing the right path, one that does lead to the so-called *Theory of Everything*.

Note, incidentally, that title of 'Reverend' as applied to Samuel Earnshaw, another indication that such enquiry into the physics which underlies our universe is not unconnected with the pursuit of religious interests by those having the necessary scientific skill.

Even the later researches of Clerk Maxwell could not overcome this barrier which blocked our perception of the electrical structure of the aether. Had the error been recognized, then it would soon have been also recognized that the aether could comprise a uniform background continuum of charge of one polarity permeated by a system of electrical charges of the opposite polarity, the latter forming a crystal-like structure and the whole becoming a kind of invisible fluid crystal medium offering no resistance to movement of matter but yet having a structured form that could share that motion.

The speed of light, being referenced on that structured charge component, rather than an absolute frame of reference would then have provided the explanation of the null result of a famous experiment reported in 1887 by Michelson and Morley and aimed at measuring the Earth's cosmic motion through space.

It is unlikely in such circumstances that Einstein would have found a hearing for his philosophical notions concerning a theory of relativity and, since that theory has led us nowhere in our quest for a *Theory of Everything*, new theory having truthful foundation would have emerged in the 20th century with the aether as its basis. As it is, in this respect, one could say that the 20th century was *A Lost Century*.

So, in such a quest, I really wonder if what I have to say on the *Theory of Everything* in this work will find acceptance. One can wonder, however, if the task of developing such a theory is worth the effort, given what the current Master of Trinity College, Cambridge, Sir Martin Rees, now Lord Rees, has written in his book: *Our Final Century*.

He paints a picture of doom. In his opening *Prologue* Chapter 1, after saying:

> "The twentieth century brought us the bomb, and the nuclear threat will never leave us."

and then reminding us of the many other problems of our present time he says his primary aim is "to focus on twenty-first century hazards, currently less familiar, that could threaten humanity and the global environment even more". Then followed the ominous warning:

> "Experiments that crash atoms together with immense force could start a chain reaction that erodes everything on Earth, the experiments could even tear the fabric of space itself, an ultimate 'Doomsday' catastrophe whose fallout spreads at the speed of light to engulf the entire universe."

Who, he asks, should make the decision as to whether such experiments are undertaken in the future? Who else, but the wise scientists who advise governments on research funding aimed at satisfying their curiosity in their search for *The Theory of Everything*?

Such advice has, however, to be tempered by reflecting on past errors, particularly those in the field of science and taking time to decipher the messages conveyed by what is already known. We must heed a comment by Lord Rees that overlaps pages 148 and 149 of his book:

> "In the twentieth century we learnt the atomic nature of the entire material world. In the twenty-first the challenge will be to understand the arena itself, to probe the deepest nature of space and time. New insights should clarify how our universe began, and whether it is one of many. On a more practical terrestrial level, they may reveal new sources of energy latent in empty space itself."

That latter point is indeed the challenge of the 21st century, tapping energy from the aether guided by an understanding of how the aether shed the energy needed to create our universe. That is really the subject of this book, but our starting point is the discussion of an experiment that gave a null result, just as did the Michelson-Morley experiment, the latter opening the doorway through which Albert Einstein launched his Theory of Relativity. This experiment, on the contrary, opens the doorway giving entry to *The Theory of Everything* but, though a Nobel Prizewinner did open that door and stood for a while in the doorway, he failed to see the way forward.