

What Is in the Book?

– Or –

How Is the Presentation in the Book Structured?

The book, “*The Theory of Interaction*” is a sincere attempt to take a close look at many of the currently accepted concepts in physics, especially in “modern physics” and evaluate whether they are rational, as well as if they really do constitute a good fit with the already existing and verified experimental observations and associated mathematics. We will say without further ado that our sincere conclusion is that in many cases there is a very poor fit, and furthermore, that many of those accepted concepts defy all reason and result in some rather bewildering paradoxes and conundrums. There are many who have satisfied themselves with the mathematical results and thereafter chosen to ignore the irrationalities – assuming that they are somehow a “real” part of Reality. Based on everything else that I have observed over a lifetime of working with physics and engineering, I have concluded that such an assumption is both unreasonable and unwarranted. I have frankly NEVER seen Reality ultimately prove to be irrational in any manner. Always, whenever such might have somehow seemed to be the case – once a correct understanding of the phenomenon was eventually resolved from any given situation – the phenomenological condition inevitably proved to be quite rational.

If rationality truly were, indeed, an inherent part of Reality, in distinct contrast with the situation related to a number of the concepts in “modern physics”, then the logical conclusion would also have to be that something must be awry or missing in those concepts. This is a rather bold assertion – those accepted concepts represent a great deal of very earnest effort by a great many powerful minds. Given that something were to truly be awry or missing, then it would also have to be concluded that: whatever critical factors there might be that could have been overlooked in order to have led to such a situation, would of necessity have to be rather subtle and obscure – certainly significantly less than obvious!

When one needs to try to identify something that may have been overlooked by many great minds, it becomes very important to be very careful and thorough. It also becomes most important to recognize a very basic and accurate truism:

One cannot expect to keep on doing the same thing – following the same sort of processes and methods – in the same ways and mannerisms, and expect somehow to come up with a *different* result. If something is truly awry or missing – we must be willing to approach the effort from some unique, yet carefully studied different directions.

This book is the result of just such an effort. It was a rather recursive effort, and led down many blind alleys before a set of truly rational, interactive concepts began to congeal into a rather comprehensive and consistent picture of Reality. Along the way, we found that we had to go back further than we ever would have anticipated, and we also had to reevaluate a great many concepts that have long been accepted and taught as verified and valid, in order to reach a more correct understanding of what we really do (and do not!) know. Once such was finally accomplished, it became clear that the concepts detailed in the book truly do seem to be consistent with both the observed experimental results, as well as with the truly verified parts of the associated mathematics. However, this also meant that there would be a significant collection of extant conclusions and accepted concepts that would need to be “unlearned” by the reader as well – before many of the new concepts that are presented could be properly understood.

This, then, becomes a rather ambitious undertaking. It would certainly be of no value to abandon the accepted principles and concepts – and then replace them all with another set of equivalently

or similarly flawed concepts and ideas. It was therefore *critical* that every possible effort be made to ensure that the concepts and ideas presented truly made sense and fit together well, both within the context of the concepts themselves, as well as with the valid experimental observations and associated mathematics. At the same time, it was also absolutely critical that we be willing to take a careful look at any ideas that might potentially fit the available data – even if it may have initially seemed to be a bit of a stretch relative to all that we had ever seen or been taught. It was also very important that we take as many clues as possible from within what had already been verified and understood, in an effort to let Reality show us the way, if possible, to whatever obscure, less than obvious concepts might have somehow been overlooked.

Because of all of the above, the book is not a light read. Reality is highly interactive, so there ended up being a great many threads interwoven all together to make a rational, reasonable fabric of concepts that fit together into a rather comprehensive whole. The details are important for a correct understanding – therefore, even if it may seem a bit rambling or perhaps convoluted – it needs to be read carefully. It is rather unlikely that there will be anyone who will not find something they had not considered in among some of the introductory considerations that are covered before the primary new concepts are finally introduced.

Basic Organization of the Book

The beginning part of the book lays down some critical groundwork – principles that need to be properly understood, ideas that need to be considered, and highlights of what we really do and don't know from among the accepted concepts. One of the basic requirements for understanding the new concepts that are contained in the book and being able to compare those ideas properly with the observed experimental results, is first to have a reasonably good feel for what is truly correct – as well as for what is overstated in much of what is taught as “fact” today. It is very easy to read more into what we see than may really be there. If we do not understand properly and accurately the limitations of both our capabilities and our knowledge, we will not be able to effectively evaluate where we may be a bit off track.

The introductory sections and the first chapter (up through p. 41) are focused specifically on laying some of this critical groundwork. It is not meant to cover all of the similarly dubious points in physics, but it does strive to cover at least enough points to meet the needs of this particular treatise, and perhaps enough to help a thinking person to understand the principles and apply them for themselves. Chapter 2 (up through p. 50) continues on with the introduction, but focuses more on the techniques that we can use to try to help us to find some more complete and perhaps accurate conceptual answers – a critical element for us truly understanding HOW and WHY.

Chapter 3 (up through p. 64) covers some final philosophical principles that helped to guide my thinking before delving into a well-known parallel between the inertia-like effects observed in magnetic coils and the momentum and inertia effects that are such an inherent part of matter and the mechanics of motion. Only after reviewing that background do we use that understanding to make our first conceptual leap from one area of Reality to another – to ideas of well-hidden possibilities that, if they have ever been conjectured or thought of before, I Have never heard any account of it.

Chapter 4 (up through p. 86) then seeks to build upon that initial conjecture, taking a closer look at fields. There is a lot to consider there, first evaluating how they might work (which does NOT include the troubling implications of “action at a distance” – even though it may seem to be that way). Then we look at what some of the basic differences between different types of fields appear to be, as well as some basic suggested classifications of fields, and finally, introducing some

additional conjectures of additional aspects that appear to be there, even if they may not be obvious.

Chapter 5 (up through p. 126) takes all that has been covered up to that point and begins to apply the ideas and observations to create a more complete picture of what appears to truly constitute a photon. Photons are simpler, and thus, more basic than particles, so they are covered first. The result yields an understanding of many of the seemingly peculiar quantum characteristics of photons. It also results in a final picture that indicates that there is significantly more to the photon than “meets the eye” or would be apparent from uneducated observations (meaning that we really need to understand more than is readily evident to fully comprehend what is actually there). Along the way, there are yet more concepts and principles introduced to better flesh out the picture.

Chapters 6 (up through p. 152) and 7 (up through p. 169) then take a look at how such a concept would fit conceptually with a variety of known photon interactions and characteristics – and what such evaluations reveal further about how a photon interacts with its environment. In the process, some of the most puzzling aspects of photon behavior, such as dual-slit interference (even at single photon intensities) and the basis for those behaviors are described – based on the concepts that have been developed up to that point. Those various interaction and characteristic descriptions also serve as partial sense tests for everything that has been presented up to that point. Finally, there are several specific experiments suggested that would be expected to provide data that could be used to either corroborate or disprove at least some of the aspects of the concepts that have been presented up to that point.

Chapter 8 (up through p. 210) then further builds on the principles that have been presented and applies them next to particles – focusing specifically on separate particles to keep the picture as simple and comprehensible as possible. Along the way, there are other principles covered as well, such as what we believe is the true significance and meaning of quantum wave functions. However, a major portion of the chapter is consumed in an initial evaluation of Relativity – wherein, while the basic math is essentially unchanged, there is an entirely different basis presented for what is behind the observations. That description then leads back to an evaluation of the true significance of time, distance, mass, momentum, and relative velocity, with respect to observed relativistic effects. The final conclusions are free of the peculiar paradoxes and conundrums that are typically associated with Relativity.

Chapter 9 (up through p. 263) then takes a further look at some of the ramifications of all that has been presented as they apply to both photon-like quanta and particles. Along the way, other topics from “modern” physics such as “virtual” particles, uncertainty, force-mediating particles, energy and momentum transfer through fields, and a variety of related concepts are also covered. Additional consideration is then given to the actual nature and possible configuration of neutrinos in an effort to understand better what we have actually observed. There are also more detailed descriptions related to the electron, proton, matter and antimatter, and the characteristics that lead to non-stable particles – from the relatively long-lived neutron to all of the many other highly unstable particles that have been observed.

Chapter 10 (up through p. 283) steps beyond the simple structures of photons and particles to more complex structures such as atoms and molecules – looking at the application of the concepts to such things as electrons within the atom, or nucleons within the nucleus – to suggest how the principles outlined in this treatise should be applied to those configurations. It then goes on to cover the basic principles, as they would be expected to apply to the more complex structures of solids and massive structures. Along the way, there are some other phenomena, such as quantum “tunneling”, the characteristics of material surfaces, and nuclear decay that are also considered and discussed.

Chapter 11 (up through p. 286) is a very brief chapter that addresses some consideration of what the principles in the book imply about the stability of matter – particularly at or near absolute zero.

Chapter 12 (up through p. 299) returns to the topic of Relativity, in order to cover a few more general aspects, such as the application to gravitational effects, time “dilation”, “space-time”, and frames of reference.

Chapter 13 (up through p. 335) then turns to the rather troublesome topic of cosmological redshift. We propose some specific mechanisms, once again, based upon the principles and concepts that have previously been presented, plus some additional observations and conjectures that have not been previously considered in the book, to come up with a totally different mechanism behind cosmological redshift. Significant emphasis is placed on the fact that the *only* parameter that has ever truly been verified by our observations is that red-shifted photons have less energy in each photon than would be indicated by what we know of their source processes, and that the cosmological aspect of this effect appears to increase with distance from the source. That being the case, the discussion is focused on the energy differences, instead of the currently popular – yet potentially misleading – velocity-based references, which are directly related to the *assumption* of Doppler. Significant attention is then applied to some of the implications derived from the different perspective suggested by the different units of measure, and subsequently – how we reached the conclusions that we did with reference to the alternate concepts. Finally, there are several potential tests suggested, which (*if* they can successfully be performed) might be able to provide experimental evidence to support the conjectured concepts, though actually getting useful data might be rather challenging.

Chapter 14 (up through p. 344) then seeks to build on the principles presented in chapter 13 to evaluate some of the long-range or extremely large distance implications. These discussions have direct application to the cosmological microwave background radiation that we have observed, as well as the potential overall extent of the universe and what we can expect to be able to determine (or not determine) about the true size of the universe.

Chapter 15 (up through p. 368) then seeks to begin tying some of the implications of what has gone before together, by looking at some further cosmological considerations. Included is a further look at the nature of gravity and its implications on the extent of the universe (whether or not it should cause the “universe” to be expanding or contracting), which ultimately ties back to Einstein’s “cosmological constant”. All of this, of course, also has applications to the “Big Bang” and whether or not we truly have any basis for determining the age of the universe – or how it all “came about”.

Finally, chapter 16 (up through p. 382) provides a relatively brief recap and overview of what has been presented. This is done in an effort to provide a reasonably concise summary with which to help the reader put the main points of the treatise together in their own mind, without all of the clutter of details that have been part of the main presentation.

At the end of the book, there are several appendices, partly used to summarize a few main points, but mostly to provide some of the mathematical details that were behind some of the points relative to Relativity and redshift. The intent here was to avoid cluttering the presentation with distracting mathematics, yet making the essential derivations available to those readers who might be interested in them.

Why the Strong Focus on Concepts?

We have tried to cover this particular point in more detail in other discussions, but essentially it gets down to the fact that the heart of the problems that we are striving to address are all primarily *conceptual* in nature – they are dealing with the *concepts* in particular. We are also striving to help others to understand that there **NEEDS** to be a stronger emphasis on concepts – and their rationality – in physics in particular, and in science in general. We strongly feel that both of those purposes are best served by a treatise that is strongly focused on a conceptual approach.

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