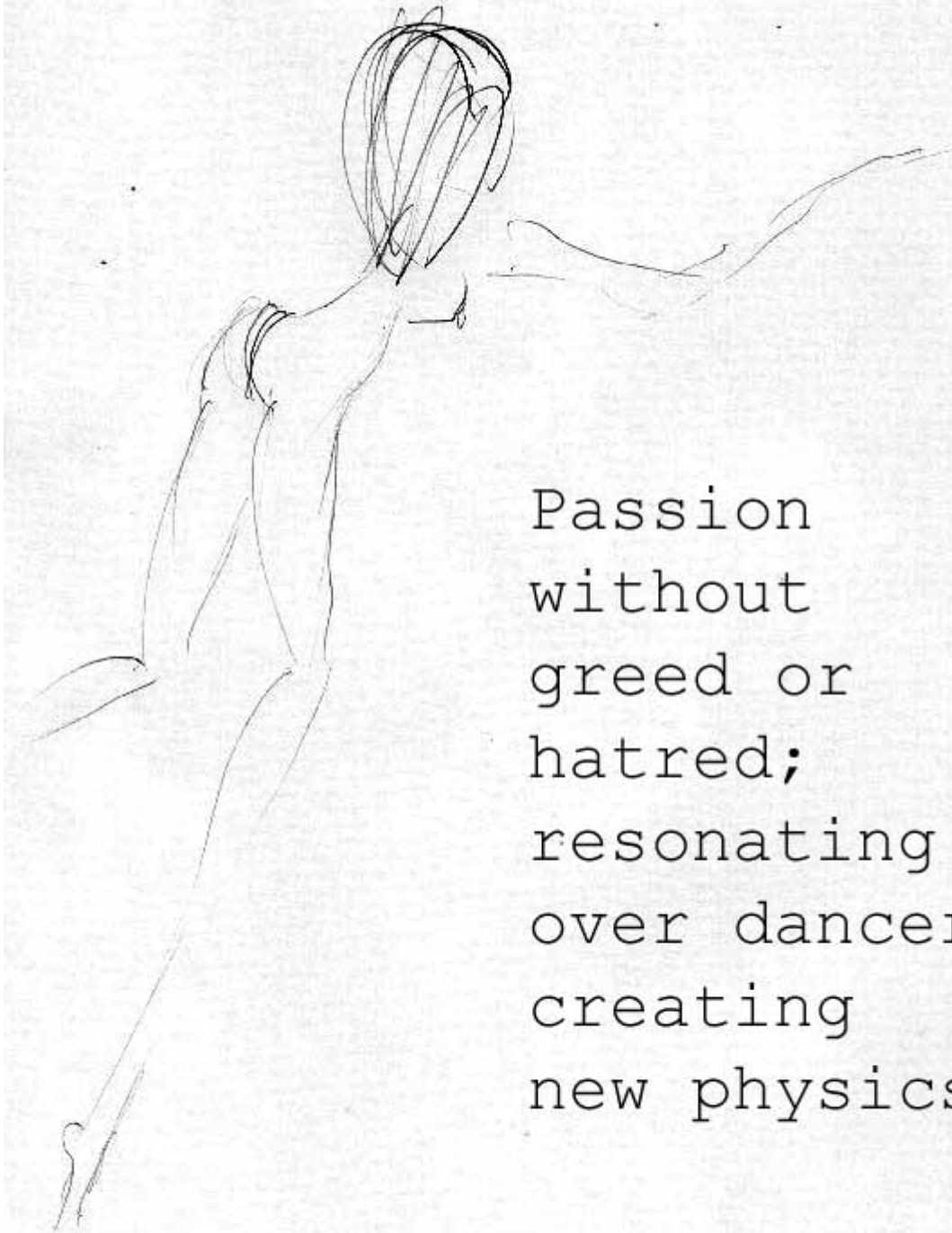


stein v.r.



Passion
without
greed or
hatred;
resonating
over dancers;
creating
new physics

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Stein von Reusch

P A S S I O N

WITHOUT HATRED OR GREED;

RESONATING OVER DANCERS;

CREATING NEW PHYSICS

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Special thanks and acknowledgements to Frans Widerberg, who is one of Norway's greatest painters, and to Aasa, his wife. About questions of mind, psyche and quanta, on issues of art and insight, on freedom from conclusions and the spirit of exploration: he has been a teacher.

For this book, published in 2004, also special thanks to: Elisabeth and Nina Van Waagen, Charlotte and Siri B Bergloeff, Margaret Hemsén, Monica Emilie Herstad, Sarel and David Bohm, Kjell Bugge, Therese Ellefsen, Kristen Nygaard, Kit-Fai and Arne Naess, Liliane and Pauline Heyzer Fan, Henrik B Tschudi, my parents Else and Stein, my sisters Kristin and Marianne.

For the physics part, hundreds of standard classical texts on the physics laboratory studies of the twentieth century I assume as necessary background to make much sense of what is written there; just spend some weeks or months at a physics library and get into the vocabulary. It makes little sense to make any source reference here but the humor and lucidity of some of Richard Feynman's lectures and descriptions of some part of quantum physics are often liked by many, though I think he is a bit thin on nonlocality: that can be made up by readings of Nick Herbert's popular physics books, by the reading of J S Bell 'Speakable and Unspeakable in Quantum Theory', and by the reading of the discussions between Bohr and Einstein; as well as a deep reading of everything David Bohm published, supplementing with readings by the older Louis de Broglie, Heisenberg, Schroedinger and other forefathers of the physics of twentieth century. A book which it might be interesting to read, especially if you insert a small word, namely the word 'not', inside nearly all its crucial statements, is Stephen Hawking's, "A brief History of Time". My own understanding of Einstein's work was greatly improved by my 'sitting in' on a number of conversations between Arne Naess and Oeyvind Groen when they made the book on the mathematics of general relativity theory; however my thoughts about Einstein's work is, in some ways, rather different from how the eminent physicist Groen presents it, I think.

SOURCES include what I will call 'reference books', not that I use them as an authority to be quoted but they have helped provide a vocabulary and emphasized a number of important insights so as to provide a whole horizon of meaning with which to investigate any particular problem in this book. I have already mentioned, but let me do so again, K. R. Popper, "The Open Society and its Enemies", volume I and II, first published in 1945 by RKP, London; fifth edition (revised) 1966, RKP Paperback, ISBN 0-7100-4626-X. Let me say right at once that I find this a much more mature book than his earlier "The Logic of Scientific Discoveries", and I find 'refutability' a more insightful and penetrating concept than his earlier 'falsifiability', although Popper continued to revise the earlier book and, to some extent, also continued to use the falsifiability notion. In addition, hundreds of classical articles on physics form the background of this work; some of them are collected in books; and some of them are books (such as 'Speakable and Unspeakable in Quantum Theory' by J S Bell).

Then I should mention a couple of books which is a constant source of inspiration and meaning though I haven't read them for a long time and do not have them around me at present, so I will not give too precise information about their publishing issues -- they are however rather considered 'classics' in many connections so they should be easy to find. The first is J. Krishnamurti, "Freedom from the Known", edited by Mary Lutyens, ca 1970. The second is D. Bohm, "Wholeness and the Implicate Order", London, 1980. I should also mention the book by Arne Naess called "The Pluralist and Possibilist Aspect of the Scientific Enterprise", perhaps around 1960. This book draws a number of implications from such attitudes as also characterized K.R.Popper if I am not mistaken.

Additionally, -- for this or that theme, in free sequence -- I must mention key conversations with Julie Oredam, Ane Graff, Ida Nathalie Kierulf, Gunvor Iversen, Gunnar Lovhoiden, Odd Grann, Karine Huseby, Warren Brodey, Thomas d'Arcy Shepherd, Astri Kleppe, Holger Bech-Nielsen, Anette Krumhardt, Jens Hvass, Espen Holm, Sandra de Zilwa and Sonia de Zilawa, Live Slang, Kari Dybwad, Jon-Roar Bjorkvold, Arne Nordheim, Kari Bu, Buffy Lundgren, Ingvild Wegger Karlsen, Hege Brenden, Basil Hiley, Chris Dewdney, Ingrid Solbjorg, Alicia Kelley, Petter Noklebye, Nicholas Hagger, Lakshmi Chayapathi, Herman R Jervel, David Lorimer, Kristen Nygaard, Cathrine Bryhn, Oyvind Groen, Tiril Morsund, Isabel Watson, Sofie Olsen, Anna Kathinka Evans, Chong Ming, Leah Garland, Johan Reusch, Kolbjoern Braa, Heidi Ekstrom, Per Sand, Ladislav Kohbach, Erika Christina Rieber-Mohn, Ramman Patek, Catharina Arganti, Ari Behn, Johannes Hansteen, Sven-Oluf Soerensen, Angelisa Miller, Jorgen Cappelen, Espen Holm, Marcia d'Olivera, Tordis Dalland Evans, Mari Midtstigen, Aage Borg-Andersen, Konrad and Anne-Lise Magnus, Bertrand Besige, Kari Dybwad, Roman Bieler, Kim Naergaard, Camilla Coucheron, Raymond Strano, David Schonberg, Jon Bing and Camilla Clausen. Thanks also to conversations with Marianne's kids, Christine Maria, Johan, Jan, Karin and Katharina, and to their father, Jan. Thanks also to some key conversations with Francis Steen, now at UCLA as professor in cognitive science; Okay, I already know of some fifty more names I should add. I apologize that this list simply MUST be incomplete. Thanks all the universe!

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THANKS graphical work and paintings by Frans Widerberg, Picasso, Salvador Dali, Tamara de Lempicka, Frida Kahlo, Gustav Klimt

* Awakening

The freedom to be alive and dance, to do yoga in the morning, to work by oneself and come to the realizations of the wholeness of the universe, this is in its undogmatic, open, gurufree forms something of what the spiritual life is all about.

Let us step outside of traditions and gently challenge all people who try to set themselves up as spiritual authorities, so that we are dialogue partners in the great conversations which life has with itself: we are life.

We are alive, and aliveness has a greater depth of importance than any idea, any rite, any ritual, any culture.

In the great battles between intentions, let us not merely compare how much we like this or that style, but ask: what has more life in it? Where is the vitality? What blossoms with energy? What has radiance?

For life, radiance, is the all-powerful, the all-intelligent, that which goes beyond all the mechanical.

When our minds are awake to all this, then we dance over the hills, nothing is a tough problem, we can see the joke of existence, the humor of sexuality, and have utter freedom from attachment and ego even as we entertain the greatest ecstasies which life can offer.

These ecstasies do not belong to the cage of seeking experience, or seeking intensity. They belong to the quietness within which reverberates and give depth of meaning to even the subtlest of harmonies.

We must challenge what we think is 'boring', for the ego lives on dividing fun from boredom and seeking fun, not seeing that its shallow fun is devoid of the vitality which could give a greater ecstasy, that of love and compassion, than its experience-seeking.

I am not against seeking experience; let us travel much, and be generous in our interactivity economies, so that we see people, meet dialogue partners of all backgrounds, and feel the essential unity of all humankind beyond any stupid division into 'race' or 'religion' or 'color' or anything like that. Humankind is born out of a greater universe and living nature and in the wholeness of all that, as sensed in our hearts, as felt in our meditative minds, as shown in our great energetic meditative arts, and as danced in the greatest and most beautiful of dances, we are also most aware of ourselves. We are not in the situation of having to limit the sense of life; no, as the ego dissolves we see that the doors open and we can go through them, feeling that the universe is a garden, our garden.

And yet, when we come down from this exalted state and meet the incredible parroting and brutality of humanity at least as humanity as been in its past, we must face up to the question of giving priority to something rather than something else. I will not give a recipe, I will not say: give priority to this rather than that, abhor that, support this, but let us ask: what can we do to recreate the highest senses of love in our being, the highest forms of intuition in our hearts, the highest clarities in our minds, indeed, enlightenment in the very essence of our being, each day anew? Even each hour anew?

If the mind is vast landscape in which all beings exist, then absolute condemnation of any being would be a conflict within ourselves with ourselves. Whether we like it or not, interconnectedness may be the strong big fact, the Fact before fact.

So what we can do? What can we do, if the ways and habits of our days are so that we

go around with brains which are merely active in monotonic ways? What can we do to awaken ourselves?

If there were countless libraries of books of the P.G.Wodehouse type, then limitless humor would open up in our minds whenever we wanted. Alas, there aren't that many of that type of books, and jokes of the past may not work in the future. The meditation technique of yesterday may not be the requirement of this day.

In enquiring into the activation of joy, meditative joy, tantric joy, we are asking for something other than mere identity, we are asking for something other than a recipe, we are asking: what is it that is always new? That is always flowering? The rama which always creates? The fountain which is always fresh?

Obviously, no limited set of words, no Bible or set of dogmas, no poem or fixed equation, can be limitlessly new. The nerves of our minds demand the new sunrise, the new valley, the new face, the new touch, the new behaviour, the new gait, the new look, the new gestalt, the new sense of life, the new form, we must be artists, we must wrap ourselves in the newness of creation, of making things according to our hearts each day anew, and yet that may not be enough: hooked on making new things we may still perpetuate patterns ingrained deep in our preconscious minds.

So what are we to do?

If no technique can always work, if no set of ambitions are always fulfilling, and if we perhaps feel that we are silently merely carrying out the hypnosis installed in us from environment, parents, peers or other elements of the past, how are we going to unwrap the new flower of the mind of this moment? Not by drugs, surely; not by alcohol, which destroys the finer subtlety and sensitivity of the nonlocal kind inside our heads; not by brainless addiction to sports; not by the chase of winning games. We are asking: how can we go beyond the 'how', how can we find the freshness of the life of the universe when our nerves are not abundant with it, but when we have perhaps some kind of conflict or pattern or habit or something -- something or other -- which keeps us back from it?

In short, how can we uncondition ourselves?

This is a real scientific question also. Science, apart from what may be practised in the name of science, may be about going beyond the self, touching reality with thoughts, not just having stale reactions.

Thoughts which are alive with silence can come from questioning, from dialogue, from listening to dialogically oriented friendly person who is giving talks.

We can write a question to ourselves in one voice and answer it in another voice, the plurality of voices being true to our being, for we are not but one, but many. And the many are whole, the many are aspects of greater wholeness that flows through our minds in each moment.

This wholeness is ripe with indications of what happens in the future about the life of us all: it is a wholeness which teaches us what to do before we have experience of it. It suggests tentative rules, open plans, free dispositions for actions so that we can dream through the consequences, feel the karma, enjoy the reading of the synchronicities, and relate to them so that we get information we could not possibly get from the past.

So we are asking: can intelligence, an intelligence not limited by mere experience, be awakened in our minds? Can it be awakened by a process in which we challenge our nonawakening, each day anew?

It is like asking, what is health? And the answer of health involves not just a reference to the fullness of the slender flexible yoga-active dancing creating laughing body, free from shame as to its sexuality, enjoying the wholeness of buddhahood, but it also refers to the willingness of this body to stand firm and defend, by a defensive dance as it were, this wholeness in the meeting with the various forms of challenges as pollutions, infections etc. So health involves perception. The immune aspect of the body -- I do not think the word 'system' should be applied to any living process -- the immune aspect or process in the body is constantly perceiving. This perception is part of health.

So is it possible to regenerate perception in us in each day?

But then, what is the language of perception?

I have been thinking about the question of language recently, stepping out of the hope that any language can be ultimate. I love English for its freedom from cultural bias -- at least a relative freedom, for it is able to convey something of the spirit of Pali or Sanskrit, ancient Greek or modern Hebrew, Mandarin or Javanese, as well as logic, as of Kurt Goedel or Alan Turing, -- something of all this can be conveyed if we do not insist on having an English that conforms too much to any standard of syntax, semantics or spelling. Let us play with English, now that it is becoming more and more that which the Esperanto-people sought to make Esperanto into being: a language which is the ownership of no cult, no clan, no aristocracy.

And yet, what is it that a language does with us, with regard to perception? In thinking about this, while walking: something which I like to do, for walking involves some many other mind functions and body functions than mere thought, so that only a few questions can present themselves and few open ideas might come, and they may be saturated with the freshness of walking and the synchronicities of people and birds and so on who you encounter. Most of this book has been created and recreated in this way. As a last chapter, you will find a rather talkative and overly repetitive introduction to a theory which actually might be a brilliant one...and it has come through a lot of walks, and a lot of, eh, well, sex also: for I feel that sex engages the mind in evernew ways and it is part of a healthy dance of yogic living.

So how can language relate to our perception? How can we use language to aid perception? And what is it that happens when a language prevents perception? For in some languages, there are certain words or even concepts that can hardly be expressed: what does this do to the minds?

Surely, a language must not inject itself into that which should be a perceptive thought.

Surely, a language must have a transparency.

Surely, a language is only a language insofar as it is fully open, completely free to relate any kind of perception at all.

Is it not so that a language can only be said to be a language where it allows us to be fully honest to our perception?

And in this way, we can say of so-called culturally biased languages that in some way that are not languages. They are merely the repetitions of stale attitudes or conformity to nonperceptive ideas.

So to communicate, not just with other people, but with ourselves, and not just with ourselves as persons, but with ourselves as multidimensional spiritual beings with minds having no known limits or depths, we need true language activities, with true language elements which are truly open.

We need, as the Buddha, to be able to say: maybe A is B, maybe A is not B, maybe A is both B and not B, maybe A is neither B nor not B, and maybe A is entirely different from all of the earlier options!

We need to be able to say, and feel: reality, actuality, 'what is', is so much more than we think. More even than this thought.

Explore, explore, explore! Dance with attention to evernew questions, and regard no stale answer as given! I personally feel good about life-welcoming affirmations, about watching the flowers and the pretty girls, and painting them too, and listening to good music and living with harmoniously uplifting ecstatic type of symbols in and around myself. But surely, without the challenge of asking a question afresh and answering it for myself or with another without any reference to any teacher whatsoever, Buddha, Jesus, Krishna, Muhammad, Lao-Tse, or any other -- entirely without any reference -- and entirely without any other drug except coffee (which I adore, together with vitamin pills) -- without the challenge of fresh dialogue, the mind is not on. To be on one's beam, to get the mind up and running and feeling silent, to go faster than one's own ego so as to go completely silent and be utterly

rich with the sense of the infinite and the eternal, we must engage in creative meditative questioning, questioning all and everything and never ever stop! We need the questioning, we need it strongly, we need it as a culture of awakening, a culture of enlightenment which has no prejudice whatsoever.

In that spirit I submit this summary, which is a word to convey how I feel about this book, this summary which might indicate some senses, some possibilities, some directions, some lines of reasoning to get something of the foundation a little bit straight so as to encourage the enjoyment of personal exploration of the most important and big questions in life every day anew.

When we engage in enquiry, we create art, we create the art of discourse, the art of insight, the art of awareness, the art of being in tune with a life which transcends the predictions of the past: the art of being new and being harmonious in relation to whatever is at hand. This is the art of having facts not just opinions, not just stale reactions or fixed ideas; facts which come freshly as flowers from each enquiry every day anew, which gives energy to our dance, energy and modelling freshness to our yoga, energy and insight to our communications, and a feeling of vastness not just in space but also in duration in which we see all life is infinitely valuable and worthy of the highest passion of protection beyond all hatred and beyond all greed.

This enquiry we can give to each other, as air, as dance, as music, for free. In India, and I love the feeling I have of what India is at its best, though I cannot say much for its guru-tradition nor its banning of sexuality between free independent women and men, -- but I love the sense of India as the explorative ancient country, or continent, which fostered some of the most mindful creations in humanity, in some of the most beautiful of recorded spoken languages, four and five and eight thousand years before Europe began with its diletantic philosophizing, leading to the vulgar materlism which science has helped bringing about.

The enquiry in Europe lead however (and I am grateful for Astri Kleppe for insisting in this to me before I saw it clearly myself) women to achieve a liberation through the materialistic kind of equality which also the French revolution brought through as an axiom of society.

The materialistic kind of equality is pleasantly bored and open as to what metaphysics a person prefers, it considers it nonsense anyway.

As a reaction to this anti-metaphysical streak, many people influenced by the European and North-American standards of materialism have sought to find elements in less materialistic cultures, and sometimes this has happened in a way which is characterised by an attitude which J. Krishnamurti labelled as 'gullible'. Let us not be gullible -- that is, let us not easily fall prey to belief. Let us be sceptical and rational about every element of every ideology, and through this rationality come to greater and greater intuitions. Indeed, Karl R Popper, though rather anti-metaphysical (see discussions on this in a book, where I challenge his grounds for it), defines rationality as intuitions which are checked, in contrast to intuitions 'gone wild'.

It is not lazy nor sloppy nor soft-minded to pick the best of each culture and join together. It is the only right and decent thing to do for a serious individual. We must take the equality of man and woman and the freedom for the individual to go against the idiotic tribalistic clank-like loyalty to family which is projected as Law in old cultures. We must take the best of this materialism and yet challenge its non-metaphysical aspects, and do so using, in fact, the best of the science that brought about materialism in the first place. In doing so, we can engender completely rejuvenatingly happy free kinds of societies in which some of the rigmarole of education is turned around. This is heavy work and so with this book you may be able to jump ahead a couple of decades of personal work; this book contains elements, especially in the last chapter, in which the best of science is extracted in a way which preserves much of its rational original ground and brought together with a lofty view of the reality of interconnectedness between each living being -- including you yourself -- and absolutely everything around you without any limits whatsoever.

This has been attempted by a number of writers with varying degree of success. The Tao of Physics attempted so on a poetic level, but was brushed off by many other scientists as superficial. David Bohm with his Wholeness and the Implicate Order did

so in a far more subtle way, but not so easy to understand, nor very clear as to what in fact is the human reality of this interconnectedness -- though it may perfectly well exist on a microscopic level involving electrons and such. We are made of electrons and so on and so forth but we need to have a clearer view of the relationship between the macroscopic nonlocality or interconnectedness (nonlocality being a word from physics indicating a relationship of an immediate kind between anything and anything else even separated in time, perhaps).

In biology, Rupert Sheldrake, and also Ken Wilber and others, have postulated, along with Goethe and Steiner, certain similarity resonances and the like, which could be part of a real spirituality. However they have not strongly and clearly related this to any particular essential question of empirical quantum physics, as I have done here; besides, I lack in these approaches -- and that is true for Erwin Laszlo's writings also -- a realisation of the emphasis not just on similarities but also on contrasts, and not just in the present moment or with regard to the past, but with regard to the future.

In short, there is some work before this book undone, to put it immodestly, but humbly felt.

I could go on and on detailing particular ways of exploring the mind, freeing oneself from conditioning and so on: but since this book in any case has a finite number of pages and a finite number of words (it appears, though I have left page numbers out), I have rather felt it important to give a fresh wind of practical conceptual orientations, more like a dictionary than like a story. For stories can be read and tossed away but dictionaries flow through and on due to the openness of interconnectivity and interactivity in meaning, and I intend to free myself from the need to write further books after this, and after the five or ten or more electronic books available on my website yoga4d.com (or the corresponding item if you read this book in an intergalactic networking situations; if there is a search option there, search on 'stein von reusch' ;)). Together, all these texts provide a solid foundation for nonfundamentalistic dialogue with oneself under a variety of circumstances in such a way that it is likely to work out and not lead to any problems.

For myself, I have a good strong background in a healthy family and plenty of good thinkers around me during growing-up period, so I have never had a trouble with my mind but always sustained the dialogical spirit even when I have pushed my mind to the limits by not sleeping for a week under stressing circumstances -- such experiments showed me, however, that sleep is the great sanity-creating factor and that lack of sleep easily induces every kind of psychotic-like state in which it becomes more and more critical that the proper dialogical foundation have been laid for the mind to carry it out. Even with such a foundation, I sometimes experienced that some of the nervousness created in lack of sleep period became like a cold or flu which had to be fought of in the following days or week. For people under even greater stress, especially if they have a weak foundation or are apt to become dogmatic, things may flip over: please watch your own limits even as you push them. Having said that, there is infinite grace in changing sleep patterns for a period while also experimenting with meditation, trance, sex, enquiry, writing, and dance, in a way which is free from drugs and alcohol, but full of good vitamin supplies and food concentrates: this can elevate some of the dormant brain structures to be part of your senses of life in an elevated way forever after.

Those who have never experienced the ecstasy of enquiry during sleeplessness have something in line for them: be careful, but do it! It is a fantastic openness of mind. Now Manhattan as the central and most active and most interesting part of New York City somehow, for me, is a metaphor of this energetic state of awakened mind, which is sort of running faster than its own ego and therefore has come to a more honest state which is also more silent -- a mixture of contradictions echoed in such masterful poems as those by Walt Whitman and much later by the man behind Planet News.

Compassion may suddenly come through, when you realize that the state of mind which has pervaded humanity for thousands of years is dense with self-centeredness and that most people are happily unaware of it -- happily, that is, at a level of self-description, perhaps, though in their eyes the immense sadness of not realizing their inner vitality more fully is shown to all who can see.

I say, English has become a language able to convey spiritual emotions beyond any

dogma, beyond any religion, at least after William James' The Varieties of Religious Experience and Bertrand Russell's The Conquest of Happiness and his masterful (but atheistic) History of Western Philosophy. There is nothing you cannot say to yourself in English, even if English is far far away from your mother tongue: I think you will find that it washes through your feelings with perceptions in a way which an ethnic language cannot do easily in the same way, unless perhaps this is a language infused with undogmatic buddhism like the language of the Thais.

Explore, enquire, activate the mind and the body along with it also sexually, for there is no category that can be avoided in the great conversation and activation of the most harmonious essence of what it means to be alive. Aliveness is the greater tree which sees the cycles of birth and death but which does not merely limit itself to see those cycles as essential. As I see Buddha's teachings -- and I would not call myself a 'buddhist' because of the dogmas I have sometimes felt that those who easily call themselves a 'buddhist' may associate themselves with -- they are not against life but against shallow self-centered identification with a fragment of life. A buddhist is life-lover, nonviolently so, and being a life-lover means loving sexuality when it is scientifically as well as psychologically and spiritually clear that sexuality is inherent in the fullness of flowering life. But a buddhist is against the attachment to piece of sexuality, or the incorporation of pleasure into a particular form, because, ultimately, the buddhist have an insight that such attachment is the essence of illusion, suffering and destruction of life. It is by virtue of the compassion with all living beings that attachment is seen as dangerous. But the buddhist must also then not be attachment to buddhism or to an organisation or to a teacher; for by virtue of this greater insight into wholeness, there is no attachment at all which is the ripe fullness of awareness. And this awareness is easily also sexual because the sexual, in its humor, reveals the life spirit to itself and rejuvenates it.

So the engagement in sexuality without an ego is part of the immense and beautiful and open challenge to the serious spiritual individual, man as woman, and of course we must realize that it is an art not to create children while having lots of sex, because children is a total giving-over of oneself to a new life process in a way which demands decades of generosity without limits. So in not creating children, and in having sex, and not in not creating attachments, we must see the danger of exclusive agreements on partnership sex, because in such circumstances the sex can foster a personality element which is nothing but a new ego, though perhaps shared somewhat between two persons. Add to this the biological reaction for the young girl who knows that she might get a baby -- I mean, the genes know that she might get a baby -- and the genes will naturally leap out and attach themselves in a deep and spiritual way to a male if that male is alone there in giving her sperm, put bluntly. What I am pointing out here is that it is ridiculous, even disasterous, to condemn sexuality between girls and between two girls and a man, because human beings are sexual beings and they need a free sexuality by virtue of upholding the life currents in their bodies in a yogic sense. This natural necessity should not lead to attachment, and when a girl feels the presence of another girl in the sexual experience, she has an in-born response so as to act so that babies are not created and the genes know that this is not a situation which is apt to lead to a permanent male provider. The very presence of other girls in group sexuality creates a sense of freedom from attachment and one must train oneself to accept such situations and go beyond any petty comparison which might limit the situation.

Seen in this light, the sexual freedom of materialism is holding within itself a fantastic promise of real spirituality when it is combined with enquiry into the freedom from the ego, and also from reckless pursuit of games and foolish addictions such as cannabis. The hippie movement, in its best essence, was neither about drugs, nor about gurus or politics, but about the combination of sex and spirituality. To give a greater realization of the importance not to have drugs in the brain, it would do good to add physics to the picture, as here presented or in some other nondogmatic refutable manner which allows interconnectedness to be seen rationally as a ground for the relationship between an open upcoming future and the dialogic present. The freedom from dogmatism is easier if we trust our own intuitions, trust our own minds, trust our own feelings of enquiry, and also seen the sadness, the suffering, the sorrow, of what dogmatism leads humanity into as wars, terrors, crimes, illness, epidemics, pollution, destruction of forests etc etc. Dogmatism and its self-centred coldness, and such idiotic manifests as Ayn Rand's Virtue of Selfishness, lead to a perpetuation of the closed mind which is the antithesis of the intent of this whole enterprise and joy, which is the ground of this book and the talks I constantly gives and so on.

So I offer the suggestion that we welcome porn and think of it as a beginning spirituality in which beauty is the intent beyond personal ownership; in which violence is not accepted, not considered as interesting as part of the sexuality; but in which sex of all kinds, as long as it is healthy and not based on coercion or drugs or lies, is welcomed, in all areas of society, in all areas of thinking, in all areas of life. I do not think that all porn is art but I do think that all art which is spiritually elevating has a sense of porn in it. The sense of a girl dancer, whether portrayed by a girl or by a man, is perhaps, for a human being, the most luck-inducing rejuvenating uplifting symbol that exists, in any century, in any culture -- if only the mind is no longer condemning sexuality, no longer putting sexuality in a category of use or misuse, of privacy or secrecy, of shame or this or that.

Why would not the Buddha have been more outspoken on the freedom of women and the freedom of sexuality if what I say indeed is an enlightened, insightful thing and he indeed was enlightened? Well, I don't know. Maybe he said it but it was disregarded as too offensive by the established Indian culture and subconsciously filtered away in what remains of his teachings. Maybe he was afraid that he would have been totally disregarded if he went too far as to that delicate issue at his time, and consciously went for a compromise. Maybe he disagreed, quite simply. Maybe he didn't exist at all, but was invented by a set of genius poetic masters at some time. Whatever happened, Buddha is the only one I know of who is reputedly the founder of a world movement of a spiritual kind who said: doubt everything! Doubt all authorities! Doubt also the Buddha, therefore, as much as you please. Doubt yourself, doubt your parents, doubt what you have been told over and over again so many times you don't even know how to say the opinion aloud, because it is simply there. It is there, as the water which you as fish swim in. Express it. Express item by item, dig it up, get it out, look it at, find out where your own heart and your own head is in each little issue.

As the issues are clarified, one by one, slowly, carefully, in a dialogical enquiring process, taking the time it must take, then more and more you will find the myriad small light-switches in your mind turned on. More and more, fact rather than opinion will present itself; more and more, you will be inclined to feel that what you searched for, has now revealed itself in a subtle way so as rather to take over your life. Widerberg said: when that happens, don't be afraid -- just let it take over your life.

* What is science
and why should we bother?

It is my sincere opinion that we, ie humanity, are just beginners when it comes to science. The genius of some of the proposals of Karl Popper has not, I feel, been realized in most of what is today called 'science'. There is no intrinsic reason why an institution calling itself 'scientific' should be anymore scientific than an institution calling itself 'religious' should be religious, ie, delightfully spiritual. More often than not, the dictum that 'people are the same everywhere' -- whether they work in this or that organisation, or on their own, 'people are people', -- is, fortunately or unfortunately, the case.

Popper did not fool himself about this. He did not suggest that once we speak the name 'science' we at once throw aside our prejudices and start acting in a way which is profoundly rational.

What is it to be rational? In a footnote Popper writes that rational thoughts are intuitions which are tested and checked; irrational thoughts are intuitions gone wild.

Popper urged us to engage in a scientific discourse in which we propose things which are refutable, somehow. Although he used Einstein's work as an example of work that can be 'refuted' by experience it is the case, as Arne Naess has pointed out to me, that Einstein's work contain only tiny pieces which refer to experience whereas most of it is, as Einstein himself described it, 'imagination' or 'fantasy' put to formal form.

The thrill of looking at the concept of refutability seems to me to convey what the standard of science is all about. If we come to know this and learn about this and have insights about this together then we will be able to engage as much in scientific discourse as we please, given patience and a development of relevant skills.

What is it to say something refutable? It is to say something which has a checkable, testable contact with reality. It is doubttable.

Why is it significant that something is refutable? Looking beyond the original horizon of arguments which Popper provided, let us imagine a world, vast and incomprehensible to some extent, a universe full of complexity and also, here and there, simplicity. Indeed, we find a universe in which the dialogue between simplicity and complexity guides all events.

Imagine that in this universe there is the presence of a mind, the mind of you yourself the scientist and you are questioning yourself about this universe. You may propose one thing after another. Now imagine that you propose something irrefutable.

Let us say that you say: Even if I can't feel it, there is, in a minute now upcoming, a feeling inside me of happiness: and this is so even if it is impossible to trace this feeling by any means whatsoever. How can this be false? If there is no means of tracing this -- none, whatsoever, for anybody, gods or us, with this or that or science fiction technology -- then we have as good as nothing at all.

Instead of saying nothing at all we can say something. But to say something we must guard what we say less, we must make it more open. Open statements, open mind and open societies: these things go together.

When we have a discourse where we say things which might be checked in a number of ways we have implicitly said things which might be refuted in a number of ways. That is, we have said things which are (to a large extent, or high degree) refutable. They may be true but they are refutable; it is not to say that we refute them but they are capable of being refuted if it so happens that they are not true. That is, there is a contact between the statements and reality.

When we say things which are so packed up with conditions that it is but a thought referring to other thoughts in a closed hierarchy or network of thoughts then we have

no ego-transcendence; we live inside a shell; we live on prejudice and this has got nothing to do with science.

Much of what passes in prestigious 'scientific' institutions for 'science' may be nonscientific in this sense; and perhaps also much of what is dismissed as 'unscientific' by such institutions may be scientific. In an open society, we find discourses of an open kind, involving people affirming an open mind by means of emphasizing open statements, ie, refutable statements, and it is possible to discern what is scientific from what is nonscientific without having to look to the title at the person talking. It is a compassionate view, a greatly optimistic view, and it does not matter at all that it has not been realized: it is an obvious potential, because everyone of us, at least as children, unless we have had disastrous childhood, has had at least moments of excitingly honest dialogue and discourse. And if we have this potential when we are children we have the potential no matter how many experiences and summers we have gathered. It is there. And so, if we bring this potential to fruition, we have a more and more open society.

This is an even more lofty version of the view of the open society, perhaps, than K. R. Popper first presented. After all, he wrote the books as a challenge to the totalitarian regimes which were on the rise and which led to the war during which he wrote the significant volumes.

Popper challenges the way of dealing with a philosopher as a closed package. He opens the package and looks at individual parts and modules and asks of each to what extent it makes sense, is refutable, and, if refutable, can be seen to survive checking with reality. He does so of Plato and finds that the cosmology of Plato has a brilliance not at all echoed in the racist-purist-totalitarian attitudes of Plato the political philosopher. He praises the literary skills of Plato but refuses to be caught in the spell of the fascist streaks of Plato. He diagnoses Hegel and finds in Hegel's work seeds of the closed societies that rose much later; Hegel praises irrefutable, self-enclosing, illusion-propagating notions involving national identities and mesmerizing people to follow a historical evolution dictated by a system. And Popper attempts to pull out meaningful statements on history from Marx while disclosing the irrationalities of Marx.

Had Popper written a third volume in the beginning of the third millennium A.D., he might have opened the packages of the various religious systems or teachings and similarly found that something of it is dialogic and makes sense and is even scientifically refutable and so possibly true and other stuff is sheer irrationality.

In an open society we do not say: who are we to challenge this. We invite, openly, everyone, be it children or adults, to speak their mind and as far as possible speak simply in ways that can be checked; and we invite each other to point out what it is in our existing cultures, books, and works which is of a kind that is not open-minded but which leads to unfortunate kinds of closure.

Science is a standard, a standard which leads us to come to a friendly relationship with facts. Through a friendly relationship with facts, we can come to a friendly discourse about anything whatsoever and we let doubt and checking by our guide, and this guide works together with the impulse of intuition. We intuitively check that which we also say intuitively and we invite each other to speak up if we find that we do not do this in a way which is having this essential feature of refutability.

In an open society, we must also face the question of what it means to relate to complexities -- complexities which accumulate, perhaps, by each decade of writing and working and sharing. It is easy for a professor to toss away the work of a student, if the student points out critical faults in an existing paradigm, by saying that the student does not possibly know enough to offer a qualified kind of doubt. This is not a scientific type of thing to say, though. It sounds nice but there is no such thing as unqualified doubt. It is essential, for the statements to be open, that they are available to doubt, to the mind that can do the refuting, and this mind can be the mind of anyone who takes a little time to look at the work.

If you look at the work of Albert Einstein you will see that it is not necessary to know a great deal of mathematics nor a great deal of physics to make sense of what he proposes and, because of that sense-making, and because of the nature of what he says, to be able to engage in doubt of it. It is possible, legitimate, and important: and, as at least I think many would agree, in the specific case of Einstein's work,

also of immense significance since some of his sentiments against quantum phenomena (transcendence of speed of light, indeterminism) seems to be somehow unfounded.

What I am trying to point out is that refutability is evaded if we do not have a fair amount of simplicity involved. If there is a great deal of work in the aftermath of a scientific article or book, say, over half a century or more, but a student is able to find an error in the original piece of work which can be uttered apart from any of the discussions in the following decades, and which is standing on its own, then it should be judged on its own. If the student is ignorant of much of the discussions that follows this may be in some situations an advantage and in all cases it is scientific to consider the discourse in its own right and not assuming that accumulated knowledge must be sifted through.

For just imagine what would be the case if we would have to sift through accumulated knowledge in an ever-progressing society each time we were going to utter a refutable statement or a doubt of one. Then, by each century, the amount of things to look into would have increased, for all interesting areas in a big civilisation, beyond the capacity of any person with a human brain and a decent life, unless nothing else is done for years. And after several centuries, it would take a century just to go through the accumulated knowledge unless computers or something are used but then the criteria on which the computers are used would have to be investigated under the same light. Eventually, there would be no progress at all. So it is a self-contradicting idea to assume that an ever-progressing society involves that knowledge necessary to engage in scientific discourse is accumulating. And it is no real answer in saying that paradigms replace one another, and so some knowledge gets irrelevant; for if work is done well, it transcends the notion of a paradigm and becomes part of the accumulated amount anyhow.

So, all in all, scientific discourse is open and involves the genius element of that which Karl Popper called 'refutability' if and only if there is an essential quality of willingness to attend, to give attention, to each question as asked entirely free from accumulated knowledge and only refer to that which must be referred to in order to make sense of the question and the matter it concerns. In other words, what I am proposing is that we must be willing to accept minimalist works, works which stand more or less on their own and which are evaluated more or less on their own, -- and yet nevertheless we are free, of course, to use anything accumulated if it helps in the refutability-process connected to a scientific production or discourse.

So, for instance, if somebody proposes a certain type of picture of a quantum universe with such and such characteristics it would be interesting to look at it together with something like John von Neumann's proof as to 'impossibility of hidden variable theories', which made the proposals of, first, Louis de Broglie, and then David Bohm seem irrational. However, it is possible to look into this proof, I understand, and find that it is having a hidden assumption which needs to be spelled out in order to really be a good proof. And this work was done by J S Bell because he was puzzled about how Bohm could do what von Neumann had proved impossible.

However, if the scientific discourse had been more scientific, so to speak, then it would logically have been possible for the physicists at the time of von Neumann's first proposal to discern what Bell discerned some three decades later. This would have radically changed the evolution of the theories of quantum physics in the twentieth century, I believe. What happened instead was that the complexity and beauty of von Neumann's proof led to a feeling that it was overwhelmingly convincing. But if something is overwhelmingly convincing it is not necessarily scientific. In fact, it is likely to be unscientific.

For the scientific issue is about proposing something, then letting there be a space for doubt, a moment of silence as it were, in which something else, something other can present itself -- perhaps a way to refute what is said.

Now what makes the issues sometimes mind-tingling is that it may be that the very process of refuting something is not itself adequately irrefutable. And this happened to be the case, I think, when it comes to von Neumann's work. So it is not necessarily scientific to refute something; rather, the scientific standard is to emphasize that the quality of the possible refusal or negation of a great deal of what is said is present.

Let me also point out how important it is to realize that to engage in such a doubt of everything at once is again unlikely to be realistic, due to the complexity of

even articulating every possible assumption that governs this meaning-horizon in this moment without tampering with it.

So we are all the time suggesting to each other what it might be interesting to look at in the light of possible negation or possible checking when we are doing scientific discourse of the type that Popper suggested. And I now wish to propose, in the same light of refutability, that this has almost never occurred in the history of science. I admit Einstein has done something which is an exception; and I am fully willing to admit it for elements of Niels Bohr's work and so on. But there is not much of it.

Refutability is, therefore, not an absolute issue but an issue of mind-presence. The mind-presence involving the so-called 'proof of Fermat's second theorem' is low -- it is a professional work involving hefty computer programming and hundreds of pages and it is not having the characteristic of simplicity and hence not of (a great deal of) refutability. So, I would suggest, Fermat's theorem is still (largely) unproved.

In the same way, I would suggest, the so-called string theories and so on are not (really) theories in a scientific sense. And so I would suggest that it is called for that we look for theories in which there is a simplicity involving both insights from which general relativity can be derived and insights from which quantum physics can be derived. In this process, it is likely that some parts of each package (g.r. And q.p.) will fall away as false or trivially meaningless when seen in new light, while the contact-points with numerical predictions about experience or measurements in the laboratory are likely to be upheld.

In this book I come with such proposals and I suggest that they have an adequate amount of simplicity to be called refutable, and I suggest ways in which to check these and I feel that they are true. True statements can have the feeling of refutability: it means that they are such that they can be negated if they have missed the point; it doesn't mean that they have missed the point!

What I feel is especially interesting in the light of the standard of refutability is that it leads to a feeling of a nonjudgemental way of pulling out the best of the contributions from the past without submitting to unnecessary authorities. For as Karl Popper points out again and again, refutability is a question of relating what is said to experience and it is not about submitting to the dogma or authority of some tradition, genius or master in a field. Of course, when it comes to how we speak about these things, we should also apply the same criterion to how we relate to Popper's statements as well, and I am sure that he would have welcomed that.

* Can metaphysics be refutable?
On mysticism and rationality

Despite whatever political reasons there have been, or is, or will be against metaphysics and mysticism, and despite whatever great literary outbursts, in the language of Kant and others, there has been against the expressions of metaphysics, we should, I feel, calmly assess whether there is a limit to the domain of statements which can be refutable and, in the popperian sense, rational.

I am now endeavouring to do with Karl Popper as he has deftly done with so many in his writings: to take something and discard something else. For I haven't got the sense that Popper got it all right when he used his refutability insight in the area of metaphysics. I am granting Popper, by virtue of my own intuition and also experience, full rights in asserting that refutability is essential to any scientific statement. I see that Popper joins the club of the anti-metaphysicists in some of his writings, also in *The Open Society*, although with not a great deal of comments. I feel that he has got it wrong there. But I also know that in great many circles which proclaim their interest in being scientific and rationally oriented, there is a similar sentiment against the mysticist and the metaphysical. So I will venture into these questions with respect and do so calmly and simply and as honest as I am able to, from one thought to the next.

In order to come into resonance or contact with the kind of anti-metaphysical sentiment that Popper and many others echo, I will first say something as to how I agree to some of it. For instance, Kant doubts that there is such a thing as progression in the field of metaphysics; because he does not see that adding something to something which is already in contradiction with itself can help solving it. (By the way, all my references to Popper's views and to related philosophers are through the two *Open Society* volumes unless specifically mentioned. In this age of computerized searching I have not, in the first edition at least, bothered to note page number and so on and so forth for each of these comments and, as that would have added to the refutability of my references, I should have; and I apologize that I don't do it but I can assure that if we get into a territory with little-known information I will give full checkable references there.)

Of course, metaphysical works aiming to prove things which are laid out in such propaganda documents as bibles and such -- proving by means of chatting and more chatting -- are not trustworthy examples of scientific discourse, generally speaking. That is to me a trivial point.

If something starts off wrong, with contradictions or with quotations of so-called prophets, whatever they are called, holy so-and-so, peace be with him, and all that nonsense, -- then it is unlikely that adding a little more clarification to some of the concepts can be subsumed under the general heading of 'progress' with much justification.

All this is to anyone who is in favour of such things as doubt, clarity, dialogue, honesty and so on obvious, clear, trivial, easy -- I would say. Perhaps that is a too strong statement but I do not intend to elaborate on the need not to be gullible here because I have elaborated much on that need, also in the form of written dialogue, in earlier manuscripts (see yoga4d.com/dialudes.htm).

What is abundantly clear to me is that it is a big leap from this to asserting of all metaphysics that it is irrational or of all mysticism that it is incapable of the kind of refutable statements which we have already discussed. It is a big leap and it may be right but it may also be wrong and it is no argument that we or you or me are not interested in metaphysics or mysticism so it is no issue anyway. Is it or is it not the case that metaphysics and mysticism can have statements of the refutable

kind?

The question seems simple but of course we must look a little into what we mean by the words to get a clearer question, which has an even simpler reference.

By my 'motto' of 'passion without greed or hatred' I mean a passion also to explore and enquire which has a great deal of patience in it, allowing for alternate perspectives to come in and have their say, before we progress. Let us have this wind of free play of dialogue and say something general about metaphysics and mysticism before we go on. I am willing to look for meanings now of both terms which does not have to give any credit to parroting of so-called 'spiritual authorities'.

The word 'metaphysics' in its roots seems to refer to reality, or nature, physics as 'what is born', what comes naturally, but with the word 'meta' meaning something like above or after. That is, there is something relaxed, detached, even, about metaphysics. Perhaps the metaphor of trees versus forest can do: one speaks of the importance of seeing the forest, not just the trees. That is, whereas physics may be said to deal with the trees, metaphysics is also about the forest.

Metaphysics, then, tends to take questions as to the whole very seriously. Now Popper has a bias which he shares with Einstein in denying the validity of anything which is not local as something more than a mere thought or fancy of the 'collective'. So to Popper -- and this is of course a political view as well -- the individual matters in a sense which is almost absolute and that explains why it is so important for Popper to speak of the open society in which each individual can have his or her free say -- and I am all for that. But I dare say: is it a refutable statement -- and if so, is it true -- that the collective is an illusion?

How can we check whether the notion of the collective is an illusion or whether it refers to reality? Well, we could look into something like physics and ask whether there is any evidence that groupings of large processes might have something physically directly and immediately in common. Alas, from Popper's perspective, there are indications of this -- but not in Einstein's relativity theories. In quantum theory, although in an implicit way (usually, but we will look into a fresh way which we will describe here for the first time), energy processes can and do have features in common over great distances given certain extremely general conditions which we cannot rule out that apply given the present state of physics. So I am willing to say that the notion that the collective is an illusion is a refutable statement and that it is also false, and that, hence, Popper is wrong if he asserts this.

Mysticism, unlike metaphysics, does not contain a direct reference to reality (such as its root 'physics'), but rather refer more to the subject, the perceiver, who is supposed to be able to relate to the whole existence beyond the sensory organs, also with closed eyes. But why not? It is a statement which, given some elaboration, can be given a refutable form: a person can relate to facts in other ways than by means of sensory organs. We can then proceed to check this and if we look at attempts on extra-sensory perception we find not very convincing evidence, as far as I am aware of, now referring to twentieth-century literature on this in science. However, I have a great deal of personal experience that I know can be translated into types of experiments which has not been performed in the most talked-about ESP experiments. For instance, I would say that it is of great importance to entrain resonance between the whole nervous system and not just the brain of at least two persons for a long time, like three months, in order to establish the grounds for pervasive telepathy. Now if you don't believe in such I am granting you that right, of course, but please see that what I just offered is within the realm of the refutable and so it is not a statement that lacks an intended touch with reality. It may be wrong but I think it is right. And if we are both interested and have time we might even find out a great deal about it, check it and see if it can stand the checks. I think it can.

I also think that humanity is, as I said in the beginning, hardly into puberty yet as far as scientific thinking goes and is it one thing that science has only grudgingly accepted then it is anything involving immediacy and direct contact. Science, at least before Popper, seemed to a large extent to be founded on the idea of the local. The nonlocality of quantum physics crept into it only as a result of Einstein's repeated claim, to Bohr, that physics should be local: it resulted in a proposal that such a restriction was unnecessarily narrow from the group around Bohr. Eventually the concept of 'nonlocality' came out of this. Confer the so-called EPR article of (I think) 1935, where Einstein, Podolsky and Rosen proposes the locality criterion in a critique of the form that quantum theory had got through the work of Bohr's group in

Copenhagen (the so-called Copenhagen Interpretation).

Many years later, what J S Bell did in the mid 1960s, and what Alain Aspect then did empirically in 1980, the concept of nonlocality came into physics in a way that was rational, strong and (as far as we can see now) unavoidable.

The grounding of elementary physics on nonlocality does not automatically mean that it applies, at ordinary human temperatures, for something like our nervous systems. However it is at least a clear conceptual rational theoretical foundation which entirely surpasses the old idea (among some so-called mysticists) that ESP had to do with plain radio waves. Here we are talking of something prior to electromagnetic waves; we are talking of the very probability wave patterns which lay out the likely pattern for energy to follow -- that these probabilities may interact, so to speak, with each other even though they refer to energies widely apart. In sum, there is a connection-across-distance and this is something that Einstein quite simply found untasteful (he spoke of it as 'ghostly' in his Ideas and Opinions).

However, when someone speaks of science and of physics as if it is obvious to any rational person that mysticism is irrational I feel that the person is not only wrong, but dangerously close to irrationalism himself. For once we begin to look at what mysticism means we find that it is a lot of refutable statements we can enter into and it is by no means obvious to all who are learned about physics at least to some extent that this is all wrong. So when somebody dismisses mysticism or metaphysics without argument, I would say that is untasteful and whatever we can say of Einstein, his way of doing things involved a sense of the openly expressed; he did not conceal and he did not toss things away without giving a reason that was either profoundly subjective (such as when he spoke of something as 'ghostly') or which was rational. Einstein related his ideas and opinions under the heading 'Ideas and Opinions' and this is an eminent example of his good taste. He did not speak of his bias as the final truth but elucidated exactly what he meant and offered it.

So while I disagree with Einstein's dismissal of the nonlocal it is clear that what he said helped the dialogue immensely in many ways, the dialogue that led to more and more and more of physics. At the same time, if we apply some of his criteria of beauty and simplicity to the present state of physics, I think he would have said that not much has happened. My late friend David Bohm indeed said the same (and he happened to work with Einstein some weeks before launching his controversial career).

I have had the the chance of discussing the issues of metaphysics and mysticism with strongly pro-Kant thinkers of some sharp logical training. While they started out with an outright dismissal, generally speaking, of such things as metaphysics, the result, after some sessions of conversation, was usually that they no longer regarded it as impossible that mysticism and metaphysics can have a rational and even scientific foundation. I am not sure that we really reached agreement or that we achieved a sense of feeling the same amount of interest in the positive possibility of these things. However it is clear that there was a movement from deeming the whole idea as inherently irrational to deeming it possible and clearly within the domain of the rationally discussable. (In order to make this statement a little more checkable I will, in this case, mention one person with whom I had such a series of conversations some time ago, to which this general statement can be seen to apply, and that was with the grand-son of Arne Naess, Tore Naess, himself educated in philosophy and mathematical logic.)

But instead of adding opinions in favour of mysticism and metaphysics I wish to go back to the original question, having now the background of this discussion warm in our minds, perhaps: can a metaphysical statement be refutable? Can a mystical statement, or statements regarding a mystical approach to life, be refutable?

Trusting the process of negation, as J. Krishnamurti called, I wish to phrase the statement which I most feel is in odds with the truth, with a question-mark. This something I have experienced as clarifying time and again in various dialogues in all areas of life and thinking. In this case I can say:

Does it make sense to say that all statements relating to reality as a whole are irrefutable?

Are all statements referring to wholeness irrefutable?

Are all statements referring to the wholeness of existence beyond any question of checking?

What leaps to my mind in this moment as I just wrote the question in that way is to ask: what do we mean by checking, in the most general case?

The answer of the circle around Rudolf Carnap, sometimes called 'the logical positivists' or 'the logical empiricists', is that checking means looking to sensory data and comparing our statements with them. A statement which does not have any such correspondence, whether affirming or disconfirming, is 'metaphysical' and, as far as science goes, something which should be ruled out -- they said. As far as I have heard.

If my metaphysics is that of extreme and absolute locality then Carnap had it right. But only because that metaphysics is right. And if that metaphysics is not accepted, then we cannot accept the dictum that measurement data can only concern the local and not the whole of the universe. To give an example of the extreme alternative, I know of (and have talked with, in depth, about the issue) a professor of physics named Holger Bech Nielsen (at Copenhagen Bohr Institute) who suggests that if in the future the universe should perish it should have certain observable consequences concerning some particle properties in the here and now due to a feedback in the time dimension. That is most probably beyond what most would consider 'ordinary physics' and me, for one, thinks that some of the assumptions in the reasoning are just faulty (the determinism for one). But I am willing to look into the argument and Nielsen is one of the founders of elements of the string theory and certainly a mind of great standing in physics. He speaks of measurements which involve a property of the entire universe, albeit in the future.

What seems to me to pervade Kant's writings and to me make most of them utterly boring to read is a fragmented view of the human being as a lone island, disconnected entirely. It is a metaphysical viewpoint that Kant has, as far as I can see, and that is of the individual as having a mind that is beyond the rest of the world. I think Kant is, indeed, projecting an implicit metaphysics here and so I think he is in self-contradiction in trying to toss away all of metaphysics if that is indeed what he is trying. And I feel that the same argument goes against Carnap and his circle in early Vienna. As far as I can tell, both Bertrand Russell and Karl Popper suffers of the virus of not seeing that localism (as we can call it -- the idea that the local is necessarily more real in its disconnection from the rest of reality and in particular the mind of the thinker as an island apart from everything else) is indeed a form of metaphysics.

And I am willing to go as far as to say that it is indeed this particular metaphysics defending itself preconsciously that lead to the empiricist attitude of 'tossing away metaphysics and mystical statements'. It is not a tossing away of all metaphysics, only of that which is not the one chosen.

I would say, then, that it is brought forward in a logical way here that there is no a priori reason to judge metaphysics as beyond the domain of the refutable. There is no a priori reason to judge sensory organs as beyond metaphysics. A mystical statement may possibly be refutable and there is no faulty logic when one admits this possibility but rather it is a subtle error to not see that logical empiricism is tainted by a localist metaphysics and a localist mysticism. This is shared with the personal philosophy of Albert Einstein but Einstein expressed his views, as far as I can tell, rather fully and expertly so that they can be doubted; whereas I am not sure that most other critics of the not local or metaphysical have expressed their views so well (and hence, so refutable).

* Modes of Questioning

With the belief that Karl Popper has in what he calls intuition or intellectual intuition -- an intuition which he has a faith in which is qualified by the condition that he regards intuitions as something which ought to be checked, because it is fallible -- we can ask any question whatsoever and intuit answers, and proceed to check them insofar as we have made our answers checkable or refutable.

Let us notice how much more subtle this attitude to the activity of the scientist is than the vulgar 'pulp art' version of Popper's view of science. Popper is a person who has a solid belief in intuition and so cannot be classed together in a tight way with the rigid narrow-minded kind of empiricism. However, as I pointed out in last chapter, I do not consider that he has properly used his intuition and his logical skills on making explicit the consequence of this, namely that the denial of the refutability of metaphysical claims is itself a metaphysically based claim and so a contradiction.

In this chapter I will propose four modes of questioning.

- 1 -- acquiring mode
- 2 -- distilling mode
- 3 -- refuting mode
- 4 -- infinity mode

In the acquiring mode, we do such trivial things -- typically of the bad kind of school teacher or university lecturer -- as to instill an attitude that the question is about accumulating knowledge-stuff. This accumulation can be of word definitions, translations, grammar rules, pieces and bits of knowledge of various second-hand kind, quotes, and so on. I regard the whole thing trivial to the extent it is boring and yet it seems there are philosophers who have given years and years to elucidating the nuances of questions and answers in the acquiring mode as if it were some kind of

godhood or fountainhead and it is exactly for that reason I feel it is called for to give this type of questioning a name.

So as to warn of this mode: for it tends to clutter the mind, it is about accumulation, and an accumulation that may make less and less room for insight. For it quenches innocence by experience, unless tempered by the other three.

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In the second mode, which I prefer to call the distilling mode, or the mode of distillation, the aim of the question is to throw away accumulated noise and elucidate how something is false so as to reach a point of contact with a truth in the matter. This is evidently the negation concept of J. Krishnamurti. He was a master in its practise and it can be frightening before one tries it oneself, and learn to relish it as a fine wine. But it is more than a wine, it is a necessity. The question asked is, without making it into a formula, typically the statement of what you suspect is wrong with a question-mark after. When this question is asked, you may feel that instead of achieving greater clarity, there is a set of opinions involved in the question which is in fact asserted in the act of asking the question.

When a question thus conceals the mere affirmation of prejudice, it is proper, in the distilling mode, to suggest that the question may be wrong or we may need to go deeper and look at the issue in a way which is more direct.

In going deeper, we can achieve yet another question which is such that when it is asked, something falls away as obviously not the point of progress in the issue, and this leaves a space in the mind for an actual intuition or immediate insight or what Karl R Popper calls an intellectual insight.

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In the refuting mode, we are stating a research question with an empirical angle so as to check against reality. This is a question with regard to experience, perhaps -- as I would like to point out, following the enquiry in the former chapter -- an experience involving something beyond mere local issues. It can be an enquiry into wholeness, felt and experienced directly, for instance. It can also be an enquiry into the quantum phenomena beyond any quantum tradition. It is the point of touch for a theory with experience, and it involves statements which in Popper's terms are refutable. This may, then, also be called the refutability mode.

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In the infinity mode, which is related to the distilling mode but which is beyond concern with any particular issue or with reaching any particular insight, the act of questioning is so as to guide the mind to come to a sense of infiniteness.

When William Blake or Walt Whitman asks their questions in their poems, whether using question-mark or indicating their wonder in some other way, they are sometimes, I feel, touching on an infinity mode. The question mode is not merely acquiring or distilling, nor strictly refuting, it is a questioning mode apt to induce a meditative state, a trance, it does the job of a drug only it does it better for it leaves no residue of chemical poison which must be cleared away afterwards.

The infinity mode is getting high without a hangover, it is the act of asking things like, 'What is "what is"?' and staying with the emptiness and the fullness of not knowing and yet knowing in that not-knowingness. These are not issues of conventional paradox but they may involve a sense of positive contradiction. When analyzed in one of the other questioning modes, in particular the first or third, they may seem like nonsense and it is this nonsensical aspect that has led, I feel, to much of the condemnation of the mystical approach among many of the early logicians. However, one must be willing to say that it seems strange to suggest that the feelings involved in poems like Leaves of Grass, and the statements that surrounds them, are mere tokens of confusion. Certainly it may be a token of confusion to disregard such a work of art.

And it is exactly in the fourth mode of questioning that we can naturally, more naturally than in any of the earlier three, bring in the concept of art. Art as the creative spirit, playful and ever humorous, bringing new senses of synchronistic experience to the mind that is not clinging to the ego and selfishness of logicism of

the petty sensory-bound kind. And yet the fourth mode can convey itself through questions that refer also to the senses, and so the mysticist can open her eyes to the leaves of grass and find also there the implicate order of the whole universe, with luck and grace.

In the fourth mode we can also touch on tantric feelings of orgasm and delight and in my phrase 'resonating over dancers' I am personally giving an impression of what it is to meet a freshly educated ballet girl also in bed, and in her naked unselfish improvised dance at a floor -- and in meeting her gaze, seeing everything in that nothingness. Formulating these things may lead to the poetic style of open-ended questions which has a tone of the ambiguous or infinite or complementary in it.

I would also say that any great act of a scientific character involves a suspension of assumptions criss-crossing all four modes of questioning and possibly any other modes as well. David Bohm, in the last conversation I had with him, that time over phone, spoke of the difficulty in suspending assumptions, suspending somehow also emotions -- is it possible, he asked, to suspend a feeling, to let a feeling and not just its intellectual content be up for attentive questioning gaze? For then dialogue begins and its narrow purposes fall away, he suggested. And indeed this was a recurrent theme some of the times I spoke with him. Too sad he couldn't live longer to work further on these issues which to him was also an expression of decades of experience of way too little dialogue in his own field of expertise, something which is documented fairly well in various books.

Then again, if we, like Bohm, speak of 'suspending assumptions' we must take care not to try too much at once so as to achieve nothing at all in the area of questioning. If we lump together the negation of Krishnamurti with the refutability of Popper and simultaneously want a kick of wholeness it may be little of each in practise. That is why I have not included 'suspending assumptions' in any of the categories but rather regard it as a (perhaps positively) blurred expression which can relate to them all, because any such division of mental phenomena is bound to be surpassed, on occasions, no matter how accurate it may be, by situations in which they all act as one.

One more word on the infinity mode: I am of the opinion that mathematics is less the issue of clear-cut proof than I thought it were. After spending many nights and long weeks and then months and doing so regularly with Goedel's proof and corrolaries I have re-iterated again and again certain definitions which I now later have come to see as unclear ideas. No matter how much we do computer simulation and checking of the rules we employ in our socalled 'proofs' it remains to see whether a proof stand. I go further than Popper, I think, in my willingness to apply the refutability type of criterion also to mathematics (for he seems to make an exception for mathematical proofs). It is never certain that a proof is a proof -- that is a motto I have learned to come to as a truth. It is, and it must be treated as such, a refutable statement that something is a proof.

In the middle of this book, or thereabouts, we will return to some surprising mathematical issues.

Let me also add that it would be presumptuous to claim that I have successfully carried out the refutability mode in all these essays and musings. In particular, I have used something like the distilling mode (I hope, at least), in the essays on spiritual feeling. Yet also in them the refutability mode or the refuting mode remains an aspiration and a quiet measuring rod.

* Youthfulness
and the theory of happiness

Let us most playfully -- in this section -- apply some of the calm insight-tools on an area of concern for us all: the theory, or at least the assumptions we have surrounding the all-important area of happiness or life joy. If it is possible to come to some kind of communion in understanding as to the deepest quest of us all -- the end beyond all ends, the aim higher than all aims -- then it is also possible to say: if we have, at a human level, in society some kind of conflict but we know this aim beyond aim in togetherness, then it is of means we are in conflict and this is not such a tragedy, surely we can work this out.

So the basis for peace may be to suspend our immediate concerns and meet, face to face, in an open enquiry which is regularly renewed, I suppose -- given a new vocabulary and so on -- as to the nature of happiness itself. And there is no guarantee that there will be agreement, of course. Also we must learn something of what it means to enquire so that we do not come to such a meeting merely with the intention to propagandize a solution which we do not intend to doubt or submit to modes of questioning such as to distill an essence or provide testable claims, claims which each can test in his or her experience.

I feel that happiness is intrinsically concerned with some sort of progress, in the sense of the fresh growth of new flowers and fruits all the time, the youthfulness of looking ahead and feeling that there is a movement in conjunction with that looking. It is when progression feels good that the enjoyment of the movement in itself is greatest, I propose. And every moment of great absorption has something new, unparroted, creative in it, and as such provides a datum to the future in the sense of insight, new avenues of exploration, new possibilities. This is the quintessence of youthfulness and I feel it is of utmost importance that we realize that progress does not merely have to do with this or that societal factor or with silly goals.

Progress as a sense of life unfolding, life being taken care of, is itself joy, and it is something other than the crumpling of things which no longer upheld themselves. In the entropy of dead matter there is but the gravitation of going toward the center, falling apart in pieces, disintegrating. The impulse of life as it exists in coherence, rather, with everything else that is living, more or less (less in the case of a hungry lion or puma seeing a zebra or canine, yet in many cases the situation is that of kinship even between, say, birds of very different sizes and shapes in meeting a common source of food and water). This impulse of life works to bring matter in circulation in a way that is characterized by a harmony which in the old ages would have been called a 'divine' harmony. And I would say, why not? Why can we not say divine harmony? For surely we have not depicted on paper in the form of rules the essence of the harmony of life, the feelings that pervade plays of Bach or Beethoven and which makes the brain sounder and the skin more resilient when we allow the music to fill our working surroundings.

I hear that scientists have shown that some pieces of Mozart tend to evoke more expertise of a mathematical kind in schoolchildren and I am not surprised at all, if it is correct.

So we have a bundle of words, progress, health, harmony, happiness, learning, insight, meditation, and the act of being creative. These words belong together with youthfulness, with going ahead. Youthfulness, I suggest, is the aptitude of life to relate to future as if it were real, in some open and exciting way, whether we are five or fifty or of a completely different age.

Youthfulness is something we can anchor ourselves in by renewing our contact with all the highest feelings and types of actions which evokes those higher feelings. Generosity is also a key point here; just as a fruit tree is yielding of fruits which must be plucked or else they may deteriorate and bring problems to the tree, so is the youthful person overflowing with skillfully readied products or processes which are not patented and put aside in a box but given. This action of giving allows the capacity to give well and give much to grow. So generosity calls on the means to be generous in the future.

I will have more to say about these issues in a later chapter on ethics and worldviews etc.

* Paul Feyerabend on Popper

Paul Feyerabend has given some worthwhile impulses, in such books as "Against Method", published in the U.S. in the 1970s, to correct certain aspects of Popper's proposals.

For instance, Feyerabend strongly argues against the use of the notion of method in the idea of the essential scientific practise. He emphasises that it goes beyond

rules (and is in this sense "anarchistic") and that much of the best of recorded discoveries in science comes from hunches, guesswork, intuitions, and indeed also a focus on contradictions, on bringing up counter-factual issues, of pushing through seemingly irrational beliefs and so on and so forth.

However, as far as I can tell, Feyerabend lashes out too strongly. His focus on Chaos is worthwhile only as a correction to an emphasis on the intent to relate to reality, otherwise it declines, just as Nietzsche's philosophy, into the 'harsh anarchism' (that I have sought to avoid in my emphasis on 'compassionate anarchism', see www.yoga4d.com/dialudes.htm).

Consistent with Feyerabend's insistence on the irrational, Feyerabend criticizes the very thought that there can be such a thing as a fact in a sense which is independent of ideology.

Let me say something about the issue of fact first. We may intend a factual statement but be uncertain as to whether we have got one. We may be humble with regard to reality without saying that it is impossible to have contact points with reality in our thoughts and in our expressions. We may rightly suspect or engage in doubt as to whether we have let ideology bias how we relate to reality, so that what appears to be independent fact is in fact a mixture of fact and ideological or emotional bias. But all of this is consistent with the opinion that there may be such a thing as a fact in an independent sense, independent from both method and ideology, from attachment of an emotional kind and from fears and so on.

My sense of a fact is that it involves a bonding or a resonance between our attention and reality through a thought-form of some kind, involving also a feeling. This is a feeling involving a relationship beyond attachment. Attachment is a resistance to let go of a particular attitude and leads to both suffering and illusion; when I speak of a passion beyond greed I also mean a passion which is a bonding and a love beyond attachment. This is a subtle issue and a tranquility or harmonious excitation of mind which is a result of insight and a relationship to fact. It comes through intending a factual contact not by dismissing the idea that there is anything but ideological stories perturbed by some kind of obscure world. This intent involves dialogue, a stretching towards something greater than our own thought. This I see as a scientific standard, but I agree with Feyerabend that it is not about method. In this Feyerabend also agrees with J. Krishnamurti, who is well-known for his insistence that holism must not be bound in method, technique or following of a path.

What do I mean by speaking of a scientific standard rather than a scientific method? I speak of an intent of intelligence, the intelligence that reads between the lines as a result of a relationship characterized by affinity, affection, interest, enthusiasm and wonder.

So we can call this, in short, for a methodless standard of science.

The methodless standard of science proceeds by simple, interesting statements of a refutable quality for which we gather instances of confirmation and which we are ready to let go of on encountering instances of disconfirmation. (The phrase 'instance of disconfirmation' I have got from Arne Naess). In the interest of fact, we are actively pursuing also instances of disconfirmation. As a very simple example, a computer programmer does not only test the program with examples that does not challenge the program structure. He or she is willing to face the situation that program breaks down under pressure because this is an instance of disconfirmation that can lead to further work on the program, so as to make an excellent program. A discovery that the program does not work is a positive discovery. So the program is considered refutable and creative work sets in -- not as a method, except in unusual cases, but rather as an inventive art -- to challenge the program. This leads to facts about the program. If the programmer is open-minded and willing to relate to fact then fruitful insights are generated and more interesting programs are made as a result thereof. This is a progress akin to the general progress we can see in science if it has a similar scientific standard. So the standard is methodless, or not dependent on method.

Refutability, then, is not, as Feyerabend seems to think, a question merely of method. It is beyond method a question of quality. The refutability quality pertains to a question or a statement about reality. It is a quality or ingredient of humility and openness (or what D.Bohm called 'vulnerability').

So, I think it is fair to say that Feyerabend does not criticize as much Popper's ideas as he criticizes his own ideas of what Popper said. For Popper is fully agreeing and aware of the role of intuition and the irrational in all scientific work and even defines rationality as intuitions checked in contrast to intuitions gone wild. The 'gone wild' feature of the destructive types of chaos (such as when corruption sets in) can hardly be what Feyerabend would call good science. So I fear that Feyerabend is putting the case way too strong. It makes sense only as a voice among several voices in the dialogue as to what science is; but if Feyerabend became the law then science would cease to be anything but propaganda, quarreling without standards, and look like an advertising business which portrays all sorts of nonexisting vitamins in their glossy shampoo ads. To actually relate to fact some essential reverence towards fact need to be intended and cultivated and while we can agree that this is not about method it is about something else than 'anything goes'. It is about selecting something rather than everything on the ground of good taste. And good taste in science is about the quality of refutability.

On issues of logic, Feyerabend suggests that much of science proceeds by contradictions rather than by actions to rule them out. I will return to this point. I agree, on the level of attitude, that way too much hope has been invested in ruleboundedness and consistency issues not just for decades, but for centuries in science, and I feel that experience with computer programming is apt to help a person to get insight into the role of rules and the essential notion of a 'law', also so as to get beyond rules and notions of this kind. I feel that mathematics, as discipline, is still wrought with a self-glorification as to its own handling of this type of issues, and I will return to some essential mathematical questions shortly.

* Ethics and worldviews

In a situation of abundance, where challenges are few, and problems small enough to be solved by any of a dozen available effortless nonviolent means, even without a great deal of attention to them, ethics can be largely a set of rules, a code, taught in schools, which is expected to be graciously followed by most. However, reality may be radically different.

Where resources are scarce, where people have gathered -- and maintain -- power in unfair ways, where threats of violence and violence itself has got some kind of upper hand and humanity has no longer got the upper hand, ethics can say whatever it wants but things may be tough to change in praxis.

A child growing up on fairytales and glossy movies in a relatively peaceful corner of an otherwise pretty barbaric society may too late realize that a great deal of what happens is not at all based on what his or her mother and father taught. The mechanisms of the world may be the greed for power and prestige which leads to much cunning, corruption and treatment of other people as if they were merely means.

Indeed, anybody who is absolutely certain as to what is merely 'means' may be infected with a point of view that leads to ruthless pursuit of goals; his or her code of honor may be connected to superficial matters such as prestige and there is no room in this for the whispers of the heart and conscience.

When, in such a bleak situation, which also concern computer programmers, but is not limited to any particular type of activity, it seems -- somebody asks: are you ethical? Are your actions based on ethics? Then what do you answer? Do you face the question honestly, feel it over, relate to the question? And, if it so happens that the answer is not a clear yes, then what is it that makes you act against your heart? Do you follow? Without asking these questions there may be very little inward happiness.

Somebody may ask: What is the point of being ethical, in a world which is corrupt? But then the age-old saying still holds: Be in the world, without being of it. Be in the world, but don't be made of it. Don't ground your life in the actions of the corrupt.

Then again, why not? What is the validity of being ethical? And how do we really judge whether an action is ethical or not, whole or not, righteous or not?

Should we look to a book? Obviously not. Looking to a book is merely a repetition of a certain attitude and ethics concerns real life, real relationship, actual people and no book of a finite number of pages can answer to the infinity of life.

So we must look inside our own heart. Then why should we listen to it?

There is perhaps no 'should'. But let us see what happens if we listen to our hearts, if we insist on asking a question again and again until we become silent (cfr the chapter on 'modes of questioning', the distilling mode etc).

Instead of merely asserting in an irrefutable way that we are incorrupt, let us say things in a refutable way, enabling a science sense about our own psyche.

And in what worldview does our actions take place? I mean, what is the world, seen in terms of actions and their effects, relationship and so on?

What happens with the body, the mind, the feelings, the quantity of luck, the amount of rejuvenation and beauty, the ability to understand things with intelligence if we do not act righteously? You follow?

Somebody who engages in threats, for instance, to get his or her own way around, is engaging in tacit violence. So that person is not a passivist. There is an old saying about letting God judge and deliver the punishment. Why should we not ourselves deliver punishments? We need to ask these questions, so as to evoke our intelligence. If we merely assume that everybody except some 'elements' act righteously, we are not relating to what state humanity is in, and has been in for thousand of years. Let us face it, we are barbarians, and the societies we create are not really civilized in any high sense. When we start imposing things on each other by means of violence we are enforcing our stupidity. Do we see that? These things are too important to be left out from any book discussing wholeness, the universe, and so on. Do you see that the worldview you have is intrinsically related to how you justify your own actions?

If you act without the full support of your heart in any area whatsoever, if you engage in violence or threats, in cunning or corruption, if you set prestige above the quest for enlightenment for all, then you have no luck, your body gets ugly, you stumble in your own feet, the things you try to achieve will stink, and the really good powers will be out of reach for you. Instantly. Do you see why? In a world in which subtle energies, mind-energies, swirl around and create subtle feelings, the whispers of our hearts, then life is about being obedient to that and trusting it, trusting the intelligence of love, of compassion. Does this love ever make threats as to the use of violence?

So there is an infinity given to you when you act based on the whispers of your heart, when you are quiet, question your prejudices, cleanse your mind, ground yourself in a full conscience where you love life, love the rejuvenating life of integrity, love that state of being innocent and not corrupt. Otherwise there will be just sadness and even the beauty of a sunset will fail to impress you. Please, I am not patronizing, I merely strongly hope that we can engage in enquiry, each on our own, and also together, and listen and relate to the implications of these enquiries. We must not loose our hearts, but stay tuned to them, to the love of individuals, to the joy of being sensitive in relationship yet strong in our own feelings of compassion. Then luck and rejuvenation and success and so on can come but it will not taint our hearts. This is the basis, I feel, for formulating adequate worldviews. Worldviews in which wholeness gets a primary role, in which we see that life is somehow infinite and that we will somehow all be around always in some sense so as to face the consequences of all our actions unless we purify ourselves, transform ourselves completely now.

For the past can be dissolved, can it not? We do not have to portray our life as somehow taking place "in the middle" between a past and a future, a past full of misguided actions that we must justify and a future which is merely a modification of that past. No, in seeing the absurdity of our own past, not judging, but just seeing how ridiculous it is, with a flash of shame but going beyond also shame, we can toss it away. The past does not have to be there. We can pick that which has wholeness in it, care for that of the past which shines with a light of integrity. But all our troubles can dissolve in a worldview in which a primary role is given to the future and to the present moment as somehow enrolled in that future and vice versa.

* The role of the body in painting

For as long as the digital machine was in the future, rather than the present, in civilisation, there were tendencies in all areas of human activity to seek to exemplify the digital. This particular seeking took the form, as for the visual arts, of looking toward the mechanical and sharply symmetrical and away from the body, the organic and Nature. So it is perhaps not so strange that there has been decades at the closing of the twentieth century in which, in many or most major art schools, the body was only 'allowed' to be shown if it were in a context of something sufficiently technological, like in the context of photography.

But in contemporary art, when the organic were shown through such technological forums as photography, even then we saw that such things as mechanical repetition of the same motive, or other mechanical manipulations, would have to 'justify' the inclusion of something organic. So it would not appear archaic and thus contrary to the (lost) spirit of contemporary art.

Fortunately, due to the density of digital technology, there has been for a while a revision of the prejudice against the organic and the analogue. What may surface in the present Large Discourse on Art may be something along the lines which I will suggest in the following. I mention this also to warn the reader that I am now presenting views which in many influential circles may be seen as controversial, to say the least.

First of all, I welcome the introduction of digital technology to human consciousness and think of it as a new way in which creativity can be expressed -- cheaply, yet with depth; with immense possibilities of reproduction, even over vast distances -- which one day will be steller distances -- and also as contrast to the analogue.

Thanks to the digital it is possible to sharpen the intuitive understanding of the analogue and see the analogue as the bearer of the digital, rather as an ocean as a whole is the bearer of the individual waves which showers in over a beach, -- a world which is whole and in which the digital is but a small part.

Thanks to the digital technology what was once thought of as some kind of mysterious mathematical order can now be seen as merely a bag of tricks. There is, in a way, no ultimate mathematics but only a question of a selection of route procedures. And none of these route procedures can be adequate to account for the fullness of life.

The fullness of life derives from, and expects, a fundamentally anarchist view of sexuality, as an orgie of beauty, joy and creativity which can be an offspring of goodness and the fullness of intelligence for a living organism. In few mammals born of Earth do we find such an intensity of natural inborn sexuality as in the adult human being. One of the things that distinguishes human beings from most types of apes and chimpanzees is that human beings are prepared to copulate almost all the time. Take this together with the fact of the natural sense of openness and vulnerability that the human skin suggests, as compared the skin of a very hairy mammal, and we see a situation in which the sensitivity of the sensual is actively invited by virtue of the inherent 'design' of the human body.

The human body, furthermore, is propelled by a brain which is activated to a large extent through feeling of which sexual feeling involves a great deal of these feelings, at least potentially.

The fall of the human being into the abyss of condemnation of the sexual, together with the condemnation of half of humanity -- the female part -- is to a large part responsible of the division between art and pornography. I would say that it is impossible to be a truly good, creative, happy, and inspiring artist, representing life, unless there is a solid grounding in pornography.

Let me draw a line between violence and all sorts of sexuality. For any social anthropologist knows that there are well-documented tribes in which sexuality has taken many forms which in current Western civilisation has been denied as criminal, including the incorporation of children into portion of adult sexual life. I am against violence in all forms and I find it extremely wrong if a powerful being, like an adult, is violent against a less powerful being, like a child. A child is also in a situation where adults often are sources of information not just about the world, but also about themselves and about their own lives. If, on the basis of lies and covert action an adult lures a child into something on a false basis then this tastes of violence. However, the current absolute condemnation of sex between children and adults or between children and children has little grounding in anything else but tradition. It is not offered as a refutable, ie, scientific proposition.

While I am in the happy situation of finding more than enough interesting sexual partners, models for painting, and partners in other senses, which are adult, mature and above eighteen and all that, I know nevertheless a great deal of what I myself felt and did as, say, a thirteen-year old. It had no limits to it, and the girls in my class surely agreed. Climbing in trees I reguarly got orgasm, not thinking of it as anything having to do with other people, since kindergarten age. The particular moments of experiencing arousal in the whole body on encountering certain facets of other people's bodies took me to look to painters who engaged in portraying such facets in a more advanced fashion. Through this my artistic spirit was aroused. In doing computer programming, I noticed that unless I was sexually happy my intelligence withered. The grounding of each day in some kind of sexual activity, even 'self-sex', in yoga, massage, dance and in sexually oriented expressions also as

painting eventually became something which provided each day with the kind of healing harmony in which I could be a dialogue partner with other people in a way that could be of advantage to others. So my capacity to be compassionate was, in short, enhanced by realizing the grounding in sexual energy as a grounding for all life, not just some.

While this is something I can be completely honest about to myself, I am still often shocked about the narrow-minded inculcations which seem to drive the very young. The parents, schools, TV, and newspapers engage in a common fundamentalistic irrefutable-sounding condemnation of so many parts of the essential human energy that they, in effect, irresponsibly deprive their individuals of a full respect for the whole being. Of course, those who are fundamentalistically clinging to notion of 'life after death' do so quite consciously: they want people to hate themselves and their lives so as to love God more and love the next life more and so as to give money, power and prestige to the priests and imams furthering such nonsensical points of views.

To me, then, the role of the body in painting is this: it must be sexually awakened and alive and enlivening for all who have the willingness to respect the fullness of life as sexual. In this, they will find that they also reconnect to their own hearts, that the paths of ethics are enlightened and easier to follow, and that both health and luck, the appetite for beautiful actions, and success coming from golden means rather than from stinking means, are awakened for them.

* How to listen to the voice
of intuition

Each body is unique, different, changing all the time; it's alive, and for a body to learn to listen to itself, and for the brain, also unique, no other brain like it, to know what it means to pick up the voice of intuition -- this is an art. The learning is beyond any 'how', obviously. It is not a mere technique or method, there is no eightfold path or fourfold truth but a constant learning, and in this learning we must be in the role of the beginner. We must have the beginner's mind, always sensitive, responsive.

So what is it to listen to the voice of intuition?

As a poem cannot explain another poem so cannot one person's intuition tell another person of intuition. We cannot dictate it to one another or impede it on one another. It is not about a curriculum, but about the most important exploration a human being can ever undertake. It is the basis for all the decisions, all the choices, all the motions, actions, even also the basis of the feelings -- this, the issue of listening to intuition.

What is intuition? Go to a dictionary or state your impossibilities, with that I am not concerned. For intuition, as far as I can see, is about possibilities. Anyone who asserts that intuition in some form is impossible is merely preventing himself from a possibility and not asserting a truth.

The voice of silence, the intelligence of love -- or intuition, the tutoring from within, from one's own light, being a light to oneself -- whatever phrase we give to it, it is about the foundation of our life. We must evoke or enable our inner silent intelligence, we must find out what it means to be obedient to it, to let it speak.

Don't come, please, with an issue such as 'logic must have a say, too'. For intuition is about listening and relating to everything and not excluding anything. There is no conflict between rationality and intuition for rationality or ratio, relationship or wholeness, is all about living by intuition and, in a intuitive process, checking intuitions, looking for logical consistencies and contradictions, feeling over the rationality and the issues of reasoning. Nothing of this is prevented if we understand that intuition is not I Ching, not Tarot card, not Astrology, not this or that but a holistic flow of feeling in which silence has its say.

We go beyond thought, that is the task in intuition.

What is the feeling that something is an intuition? How does it feel?

Is it effort? You see the importance of this question? We are now in the negating mode, or the distilling mode. We ask a question so as to purify our attention to what it is we are asking about. The attention goes inward, to itself, purpose dissolves, and also illusions, false assumptions. So that we see more clearly. We give space, have space, make space and we come from the enquiry with a much freer mind. Not just much freer but free, free in its own whole sense.

So is there effort when there is intuition?

Is there effort or is effort merely a token of resistance?

Effort involves a conflict, a resistance between 'what is' and some ideal, the 'what should be'. And intuition is something else, it flies with its own energy. So you learn to listen to all these things, to what has inertia and what is free from inertia, if we can put it that way. Thought is matter, said J Krishnamurti. Thought-time can be dissolved in meditation and then silence can come in; silence can communicate something to thought if thought is silent. Do you see the significance of this?

We may try to reason out some thing and because there can always be more knowledge, it is clear that knowledge is limited and so we ask instead: what does intuition say? And in that silence, leaving out all the purposes, feeling freedom from the problem -- not thinking about it, not being attached to any of the solutions we have portrayed before, something erupts. It comes out. As grace, rather uninvited, though we may have made a space for it through the question and leaving the question alone, not worrying about it. Henry Poincare spoke of the best intuitions coming at moments such as going on to the bus -- having left the problem, after looked into it for a while. Not thinking about it, the fresh sudden complete solution arrives effortlessly.

So we must be willing to set aside the quasi-solutions of thought, full as they may be of inertia, of the sluggishness and pettiness of self. We must not belittle life, not belittle the world, not make small or petty what or who we are, what or who other people are. It is not us against them but a question of life relating to life through also our own being. Right?

In asking these questions each day anew we awake to a life beyond the self. Intuition can come and be the basis. What if an intuition is wild, seems wild, seems dangerous?

So we must go slow and learn what distinguishes a holistic, quiet, warm-temperature-in-stomach intuition from something which has the coldness of hatred or violence or cheating about it. We must go slow and let the truth detection of our own nerves reflect back to our minds, listening to the symphony of life as it unfolds.

You may get a rather wild intuition and you ask yourself: can it really be so? Being cautious, not afraid, but just unwilling to take stupid risks, you don't adopt the intuition as a decision right away because it may be polluted by ego, by illusions, by other things which are not of the issue it appears to be about. It may be right to walk a little in some other direction then change.

Some intuitions are so as to help you define an outline for an important project or action: it takes you to some excess in order to see that the excess is unnecessary; it shows you the golden means by first taking you to some extremes.

Some intuitions are given you so as to bring about a feature in your life which is only naturally available if you are innocent about the fact that you are going to change direction, get a new intuition, around the next corner so to speak. You bring about events and social interactions by adopting also fleeting intuitions not quite knowing that they are fleeting. The not-knowingness means that you can be frank and yet change opinion when it is right to change opinion. It is not always a virtue to be steadfast, if steadfastness leads to stagnation.

The wild intuitions may come again and again but between each time you have worked to see whether it can be done without taking a stupid risk. You don't want to waste a hand or finger on going to the top of that mountain so you are careful, compassionate to all life, never accepting violent means, always the passivist, always gracious to others and never accepting any form of mafia-methods ever. That is most important, and if anyone has done so in the past one must pray for forgiveness again and again

and leave it open to life to give oneself a new grace.

So the past goes, it is transformed when you face it without illusion, without trying to fake it. You give attention to what you are and what you have done and know that there is a current of forgiveness in humanity -- humanity forgiving itself -- and this current is most real and most important. One must not toss away the issue of forgiveness. One must be able to let go of the past and face it, have reconciliation. Even politically, as the twentieth-century great politician Nelson Mandela carried out, with his 'truth and reconciliation' committees, leading to a rather nonviolent transgression from dictatorship to democracy in South Africa. That is a spiritual approach, and it can work. It must work, in the long run, it is the only thing that works. And if it is the only thing that works in the long run, then it is a thing of the heart, it is then the only righteous action. It is right now because it is right in the long run. You see we mustn't divide the two?

Intuition, then, is about a righteous life, not trying to impose goals from the ego and try to make the universe fulfill the little selfish ambition. Rather, the goals as well as the means must come from this flow of meditation over the harmonious love that is a potential in all living beings. It is not excuse that many live according to something else; it is our duty to emphasize the sense of enlightenment, not just for me or us or you but for life, on behalf of life, not dividing soul from soul.

One must let the mind dance, training it to speak spontaneously with certainty of things not known consciously; this certainty must be challenged decently, in a dialogue with oneself. When reasoning and experience suggest strongly that the inner certainty is wrong, one must meditate and not get dogmatic on behalf of one's inner voice. It is insanity to disregard one's inner voice or not to activate it if one does not have it. It is sanity to be in constant affirmation of wholeness and listen to how silence employs your own thought. In this, coffee may be a more creative potent factor than the stimulant in black tea; in a snap, one may quip that tea is for control-maniac people, but coffee for the creative ones.

If the activation leads to disharmonious statements from within, it means one has a filthy preconscious mind, and so it must be purified. Read life-affirming books with more than just a positive moral; change the images on the wall; go for long walks; talk not on phone much and relate to harmonious people and do not quarrel with those who are disharmonious; visualize healing etc etc. It is a passionate work and the result is a joy which surpasses all forms of conventional happiness.

If beauty comes from within, from the dance within -- if, indeed, the shape of the body and the face flows from the dance of cells which in turn moves according to the mind-potential, as it unravels from year to year -- then the goodness of doing right, the ethics in one's whole sense of being, becomes, as the years go by, the esthetics of one's face and whole demeanor. Let vanity go but let also the mirror teach one about ethics, about refinement -- with the intent of beauty, and indeed also of radiating such, there is something of a golden rod showing the path of right action; an action that preserves a sense of deep happiness though it may not always prove to be whether polite nor satisfactory from the point of view of narrow self.

Beauty and sexuality goes together. Can sex be regarded as an addiction along addictions to alcohol or drugs? Or is sex, as sex, pure and healthy, but rather the question is: what is the context which sex occurs within? Is that a context that is, in itself, as action, beautiful?

* Sketch of a mathematical
insight into infinity

Counting is a rather complex process involving degrees of similarities and asserting associations between a stable set of signs with an arbitrary assembly, such as when we say that the signs (or tokens, rather) I, II, III, IIII, IIIII, are to a high degree similar to I, II, III, IIII, IIIII and can be associated to, say, a, b, c, d, e.

Are the signs I, II, III, IIII, IIIII just strongly similar to I, II, III, IIII, IIIII or in fact identical, which means 'remaining the same'? Even a typescript font on a computer screen or on a printed page contain innumerable differences, of course, if seen with a magnifying lens. So any assertion of identity is subjective.

Mathematics lies in the perception of the most general processes of perception, as applied to such associations of a fixed assembly with an arbitrary assembly as we just looked at. In all questions of perception, 'looking again' has a direct authority whereas reference or memory of 'past looking' has really no authority at all. For mathematics is not about memory.

In particular, this means that any reference to a fixed set of so-called "problems" cannot express anything of an essential contemplation of mathematics.

In any perceptive process, questions of domains in focus versus a possibly shifting context are bound to arise at regular or irregular intervals.

Unless you believe in revelation, there is no final, basic, standard, ultimate or finite set of categories from which to start as to the question of foreground vs background, process vs content, context vs domain in focus. In particular, the perceptive process underlying mathematics allows for no sharp domain "definition" since that would put an arbitrary limit on perception.

Most generally, then, the borders of the domains of relevant perceptive activity of mathematics are not only unknown, but should remain unknown in the sense of consciously part of the sense of the unknowing.

In particular, while from an impatient "tools" perspective it would be, perhaps, for some fascinating to attempt to delineate a so-called "field" of mathematics from an imagined distinct or semidistinct "field" of physics, the most appropriate advice may be to refrain from all such delineation, perhaps.

On the other hand, if you believe in revelation (say, that of Georg Cantor when he postulated the definitions of certain imagined collections of numbers), then you must face the question of how you would relate to the situation of having a

perception that's at odds with the revelation you believe in. Would you then automatically regard it as a misperception? The most basic approach of science is to brush such attitudes aside as banal.

Perceptually, if we count by such rather self-explaining numbers as I, II, III, etc, adding a mark for each additional number sought, the width of the sign is in correspondance with its intended meaning.

Clearly, if we can always go beyond any particular limit as to the highest number by simply adding a mark, then there is no maximum width either.

Let us now ask what we could perceive to be the sense of all possible numbers given the type of number and number-construction as involved in I, II, III, etc. I ask the reader to 'look again' if the reader has a lot of memorized proposals as to such questions in mind.

As has been pointed out by many, notable also Wittgenstein, the apprehension of a "rule" from an example process is a question of perception and thus contains some openness. That is, we are left with flux no matter how hard we try to designate things.

One of the startling experiences for a very young individuals learning more and more about counting, say, with number entities like I, II, III, IIII, IIIII may come when faced with the question: what is the highest number you can imagine?

Humanity may still be as a child when it comes to these questions despite the self-righteous, arrogant, over- certain proposals as to the nature of the answers to such questions.

One way would be to say that given any limit, we can always construct a number whose value is one greater. This concept of the 'flexible limit' seems to apply to the construction process, and as such, also to the sense of a possible whole collection of all numbers. I call into question as to whether this is an exhaustive characteristics, however. If someone says, 'certainly the flexible limitconcept is enough to characterize the collection of all whole numbers uniquely and completely', then we can, based on the general sense of mathematics as a perceptive process, ask for the perception that led to this great claim on something as mysterious as a collection of all possible numbers.

If the answer is, "see how fruitful it is to make such a claim, see what wonderful bridges we can make etc", then we are asked to perceive of the effects of asserting a claim. And while these effects may indeed be wonderful, that is hardy to give a perceptual foundation for the statement. Rather, a justification of something by referring to its effects involves guiding attention away from this something. This may still involve perception but now perception is limited to effects rather than content of a statement. This is at odds with the essentially unbounded nature of perception called for in the most general approach initially sketched here for mathematics.

To go back to the perception of the counting process, and of the question: what would the sense of the collection of all possible numbers I, II, III, etc, mean, let us ask, even though it has been answered a million times, is this a finite or infinite collection?

The flexible limit concept shows that any finite limit can be transcended. So it seems we can negate the possibility that the sense of this collection is finite. In saying that it is infinite, what do we mean by this?

In other words, what is the deeper meaning of et cetera, in the context of I, II, III, etc?

Let us call into attention that in perception, flux is law, and stability an appearance. We should not get shocked or overwhelmed if our attempts at understanding the full implications of 'et cetera' somehow involve movement. For even the perception of the similarity of I, II, III, IIII, IIIII, IIIIII with I, II, III, IIII, IIIIII is an active process with its own natural inborn uncertainties, opennesses, and fluctuations.

We 'know', I think we can say at this stage, that the flexible limit is one feature of the sense of the whole collection of numbers beginning with I, II, III, etc. But what of other features? We can say: 'not finite', but what does this infinity really imply?

Rather as simple equations may reveal infinite orders of unique structure when turned upon itself as in the wellknown case of Mandelbrot as concerns the computer-generated 'Mandelbrot fractal', perhaps the counting process does indeed contain unique infinite structure when studied more closely.

Let us not lean on past "authorities" for there are none in the field of mathematics. The authority is the process of dialogic play in perception itself.

The exceeding simplicity in writing

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      .  
      .  
I  I  I  
I  I  
I
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to indicate the growth 'upwards, and to the right', may show no more of the actual process than, say, an initial sketch of the Mandelbrot fractal before it is magnified in one of its border regions. Or it may say as little as the Mandelbrot equation compared to the whole fractal. In honoring the nature of perception the scientific startingpoint is to assert "we don't know".

We see that in I, II, III, ... or in

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      .  
I  I  I  
I  I  
I
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there is no upward limit. What else do we see? We can see, for instance, that the set {I, II} can be characterized as to size by II, whereas the set {I, II, III} by III, and in general, that {I, II, III, .. n} can be characterized by n. This we can call the "self-reflective size property". The self-reflective size property of the collection of numbers I, II, III may be imagined to work for I, II, III etc, where "etc" signifies extension in an absolutely nonlimited sense. However, this is a big postulate, and while it seems very likely, I would not take the stance that it can be "taken for granted".

The self-reflective size property for the collection

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I  I  I  I  
I  I  I  
I  I  
I
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can be said to be that the freshest, biggest addition to the collection echoes the size of the collection.

It would be surprising (I think) to find that the self-reflective size property works only for finite sets but not for infinite sets. And yet the twentieth century knows scarcely a math text book that speaks of the collection {1, 2, 3, ...} as a set whose infinite size is mirrored in even one of its members. The signs 1, 2, 3, 4, 5, ... can be argued to be merely more complex but tight ways of writing I, II, III, IIII, IIIII, ... for both extend in width eventually.

So since we are now in a position to focus clearly on a perceptual question about which there may be an interesting disagreement with textbook authorities of the past, and which is conceptually, at least, foundational to thinking about numbers in mathematics and thus about mathematics in general, let us restate the issue.

We see that I, II, III, ... or

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      .  
      .  
      .  
I  I  I  
I  I  
I
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has a feature in that, at each step, as far as I can see right now, the amount of members at each point is indeed the newest addition. We can now look at the three dots signifying, "let the process go on".

Let me also point out that, in the context of the present research, the words "set" and "collection" are used rather interchangeably and informally, utilizing a daily life language sense rather than any definition in which certainty as to what is talked about is assumed.

To focus the question of the infiniteness involved, let us see that there is a perceptual advantage in writing I, II, III, IIII, ... over 1, 2, 3, 4, ... which is clearly brought forward in

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      .  
      .  
      .  
I  I  I  I  
I  I  I  
I  I  
I
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in any discussion involving a comparison between the number added most recently and the actual size of the set so far. For series such as 1, 2, 3, ..., 9, 10, 11, ..., 99, 100, 101, ..., 999, 1000, 1001, ... must be interpreted to a larger extent rather than merely "read" and that complexifies the process.

As far as the counting goes, I don't think we can easily imagine any sensorimotoric physical-empirical process actually constructing an infinite collection which exists physically for our senses. The notion of the 'transcendent mental' must be brought in, as if by science fiction, to allow us to see what is conceptually meaningful while sensorimotorically impractical.

These things may sound trivial but in my experience slowness and exacting reports on the actual processes of perception provide a better background for generating interesting new perceptions than any amount of footnotes and authority renderings.

We can see, to go on, that in

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      .  
      .  
I  I  I  I  I  
I  I  I  I  
I  I  I  
I  I  
I
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we let the three dots indicate the growth of an infinite triangle whose upperside width equals its leftside height at all points in the growth process, given regular spacing of the marks constituting each number. Geometrically, then, this is an "argument" in favour of the self-reflective size property of all sets equivalent to {1, 2, 3, ...}.

We have not yet, however, pushed the question of perceiving what the sense of having a truly infinite collection actually means.

If at this stage we proceed to make other sets, such as that of numbers with a decimal dot notation, we are likely to end up with Cantors $R \gg N$ where R is all the "real numbers", whereas N is all the "natural numbers", implying the notion of the transfinite and so on. But since we have not really looked at what the full infinite set of numbers 1, 2, 3, ... or I, II, III, ... actually is, conceptually speaking, it may be premature to begin to utilize members of the set N in "arguments" such as the so-called "diagonal argument" putting $\text{size}(N)$ as less than $\text{size}(R)$.

Even the formulation of a so-called "real number" like $\pi = 3.14159\dots$ begs the question of what the infinity of the three dots really is all about.

My earlier investigations led me to discard all trust in the "easy" definition of the set " N of all natural numbers being $\{1, 2, 3, \dots\}$ " which is the basis for thousands of volumes of mathematical thought. That is of course a factor inciting me, in this dialude, to be extremely cautious in asserting anything at all about the process of counting and about notions of collecting all possible numbers. However, even if we had no prior reason to be sceptical about a particular feature of such a process, why not just take the stance of the fruitfulness of such perceptive care in general? It may be a lot more to uncover.

So once we consider that at each point in the construction, from

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I I I
I I
I
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to

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I I I I
I I I
I I
I
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to

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I I I I I
I I I I
I I I
I I
I
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etc, the height equals the width of this triangle, we can perhaps, with luck, jump correctly into perceiving the mental phenomenon involving the "et cetera" of this process indefinitely.

It would seem, wouldn't it, very hard to argue that at the completion of the "et cetera to infinity" (whatever that really means), the width has lost connection with the height, and now the height is infinite whereas the width is merely a "flexible limit". This perceptive argument calls into question the adherence to the notion of the limit (the flexible limit) when one is trying to understand an infinite process.

Indeed, it seems easier to assert that it is likely that if this "et cetera to infinity" is "completed", somehow, we no longer merely have finite numbers and that which we have instead is somehow (also) infinite.

What does this imply?

Put very simply, it tears down the idea that the set of all finite whole numbers can be considered a clear idea. Without this as a clear idea, it implies that whenever a set of this type is involved in a so-called proof, the proof must be reconsidered.

One way to reconsider the proof is to admit that the defined set may contain all finite whole numbers but it is not limited to these. Since the process of creating the set allows allow for a flexible limit, it is unlikely that we will find that it is but one nonfinite whole member. Rather, the likelihood is that as soon as we open for even one nonfinite member, we allow for an infinity of nonfinite members.

Further analysis of these themes, which I have not included here, shows that any

attempt to make a system out of infinities involve its own kind of finiteness, and so easily involve illusions.

As a physicist, one could surmise that reality must have a more solid conceptual basis in the infinite than in the finite, if one has, as Einstein, a trust in the rationality of the whole of the universe, but, unlike Einstein, a distrust in the finite as a result from this succinct study.

I call for a complete revision of all mathematical texts which start with a definition of 'the set of natural numbers' or 'the set of whole numbers' as if it were a trivial matter, if the above is correct. I think it is, however this is not something I expect it is easy to get institutionalized (ie, academic) support for. (Indeed, I did not get support for it in a concrete case which I have explained somewhere at the library section of www.yoga4d.com.) Rather, the feeling that one may get, in browsing some of the literature around Cantor's work, is that it is considered to be so canonical that any doubt of it is categorized as rather moot. In contrast, I find it ripe and rich and promising, and I am sure that, in some decade, plenty of healthy rethinking about logic will flow from just this work as presented here -- though it is, of course, pretentious to say so. It is, at least, a gut feeling I have.

To put it very short: there is no mathematics. For two millenia, we have heard philosophers say that 'in the empirical world, there are uncertainties; but in the mathematical realm, there is the purity of certainty' and similar nonsense. There is uncertainty everywhere, also in mathematics, for it is all about perception. It is always uncertain whether a proof is a proof. The universe is unfinished. Mathematics is just a bag of tricks. And no trick is guaranteed to work always. So there is no mathematics, only heuristics. That is the conclusion -- which is, at the same time, a nonconclusion, a total mind-opener, a liberation from the gullible attitude towards dogmatic pompous declarations.

In this way, the very notion of infinity is uncertain as well, not just finiteness; and the distinction between the digital and the analog is not certain in itself. At some level, like a hundred 'implicate orders' beneath the explicate order, it may be that reality is perfectly digital. For only the digital is ever-new, in the sense: it has no accumulation, no past.

* Colors in painting

When I speak of an 'alphabet' in colors that a painter may take as a basis, I do not mean that this alphabet should be adhered to in a way that feels narrow-minded. Rather, it is a preferred basis. The colours may be mixed, in a process which leads to an infinity of variation between them, and there may be interactions with what is in the physical canvas (or whatever) on which they are used, and sometimes entirely different colors may be brought in. Nevertheless, it can be of an advantage, I feel, to realize the joy of having a limited yet somehow full set of colors, in which a sense of infinity may be displayed.

Just think of the impressionists in France and other places, painting summerly paintings with shining bright colours indicating rivers and green and yellow countryside, blue skies, pink girls and what not. They lifted up home after home with a painting style feeling so fresh it could be compared to fruits, and perhaps a piano played some Chopin while the little girls did their ballet exercises. You may call it an escape from the horrors of the world but then, what's wrong with that? If the escape actually works? If it really gives harmony and peace, so that people can create something truly constructive, brought forth by the compassion wielded by this harmony inside their hearts?

However we like it, most painters who produced a great deal have had a preferred color alphabet; some of these alphabets we may not be sure of, as in the case of the arguments over the restorations of ancient paintings by Michelangelo and others. Did he really use pink? What of Rembrandt, is it really not the case that they were in love with brown and black but that it is merely due to a magnificent fading that we see certain color shades today?

Politically, there may be reasons to avoid certain colours, as if: but politics must never take any precedence over the question of what can raise the human spirit, elevate our souls, make our minds open to the glory of the greater universe. We must look aside from what some politicians have come to call themselves, whether blue black or violet, and ask: what is it that most appeal to my heart -- me being someone who perhaps have a taste different from any other, yet somehow in attunement with the infinite -- and work it out from there. Just as an orchid may have its own color code and spells out its symmetries and asymmetries by means thereof.

There are quantum fluctuations, we hear from the reports of the physicists studying things in their laboratories. The Greeks some 500 years before Christ would have been shocked, startled, they would have had to tear apart a lot of their works if they had a roundtrip in the quantum laboratories and in the cosmological laboratories with telescopes and movies of novae and so on. They would have had to have a translator with them, and probably a great deal of 'debriefing' both before and after. Then they would have to say: Movement is king! Long live the new king! And all their things about the infinite static would have to be tossed away like toilet paper.

The quantum fluctuations, moreover, is akin to the role of rhythm and movement which I personally would attribute to what I have elsewhere indicated may be an 'infinite number'. For they have, don't they, these fluctuations, something ambiguous about them. They don't tend to move exactly according to any specific scheme but if studied through thousands and thousands exactly repeated experiments their very different behaviour each time can perhaps be summed up statistically. And so we see that any

interesting interaction between human beings -- why not look to the acting feats by people such as Woody Allan and Peter Sellers -- is full of ripples of the ambiguously fluctuating.

So we see, through the metaphor or intuitive apprehension, of these fluctuations, that there are symphonies of what Carl Gustav Jung called 'synchronicities' here, and I feel any good painter would do well to listen to them. I can say without insult, because I am born in Norway myself, that the Norwegian painter Edward Munch did not listen much to these synchronicities -- for he kept on painting his pains and the pains kept on coming to his life, leading to mental trouble and so on. You get the life that you paint.

The black, spring green (or leaf green), and golden, that I combine in the paintings of flowing dancers is a colour alphabeth that I just might still be using very long time indeed after this has been written. In fact, the idea has been to find something which can be a perfectly stable basis for all the coherent fluctuating dances that I wish to express -- and I foresee an infinity of them!

In painting, we have the concept of One Of Each, we might playfully make the computer-like acronym OOE, to say: a painting is absolutely different from the digital. The digital world, with its digitalism streaks in human culture, has only parroting, aping, imitation, to offer. Where there are many of each, we do not have the analogue; where we do not have the analogue, we do not have reality, but something which merely pokes on reality. These pokes on reality include the digital texts which we may generously offer to one another. In a healthy interactivity economy and in a coherent open society, we do not patent digital items but give them freely, and in addition make analogue items in a spiritual way, by hand etc, for which we can take a solid price.

Digital generosity can then go hand in hand with analogue economy. Digital generosity can be extended to all forms of generosity which does not involve substance, including giving talks, dance performances, having conversations etc. In addition to the substanceless activities which give deep meaning, we can create, craft tokens of the same generosity with a substance characterized by OOE -- one of each. The OOE is what really has a price and, in a sense, there is no such things as 'replacability' in the analogue realm.

A compassionate anarchist like myself find it, in the same vein, untastely to 'employ' a person, which is, in Martin Buber-terms, to treat a person as if the person were an 'it'. Rather, a living organism is infinitely OOE and there is no possibility either of employing nor of disemploying. All sorts of ownership, or near-ownership, or buying of another persons time, smacks of a slave- and fascistoid attitude. In realizing this, we move towards the artistic society, in which the compassion generated by good works, and the luck generated by generous actions, becomes the coherent measuring rod.

Of course, this all involves a world view shift: from the view that nothing matters much (apart from a comparison with goals), to the point of view that every action has infinite consequences that directly and immediately strike back on the person that emits this action if it is not generous; and if it is a generous action, it builds up the good synchronicity potential of this person. Ie, luck builds up. One might put it into the form of a motto: an atom of generosity is an atom of luck. Much generosity is much luck. And luck is a real thing, not chance, nor a ruleboundedness, but a potential of coherence, a coherence wrought by the quantum nonlocalities which weave together all of the universe. One may not believe in this, but it is possible to explore it in a refutable sense: is there, or is there not such a thing as luck? Is it, or is it not, correlated to the presence of a basically generous attitude in what one is doing?

But to come to the state of generosity, even in making artworks (so that each painting is a token of luck and an offering of good health and luck to all who owns it, sees it etc), one must address each item in oneself of frustrated emotions. These frustrated emotions basically have elements of comparison in them. One can discover this in a refutable way by introducing a novel comparison and see how some emotions radically shifts at once: for instance, one can compare how much one after all has with someone else. But if comparison can change the emotion, then it may be that if comparison is dissolved, then the frustrated emotion will dissolve as a whole; ie, that it has no other ground than this.

In a proper self-study, one acknowledges that one's negative emotions are there, if they are there, rather than brushing them under the carpet. Then one proceeds both with a particular investigation of each emotion, as well as with a general investigation, of emotionality in general. In dissolving jealousy, envy, bitterness, rage, frustration, loneliness, fear, etc, one must look into each issue directly, and also in a general way.

For instance, in looking into fear, one must ask oneself not just of what one is frightened of, and guess at it, work it out, but also go further and ask for the realities in the matter, if any. If one find that one actually should engage in an avoidance-action, one must then proceed and ask whether a constant fear or anxiety (personally, I would not think it is fruitful to assert a strong division between the two) is a proper avoidance, or whether it is actually not an avoidance at all, merely an irrelevant constant noise inside oneself. Which is to say, there may be snakes (or whatever) in the dark (in certain areas, there are, in fact), but it may not help to go around with a constant anxiety in oneself. Rather, one must be watchful (perhaps, if there is a reality to what one has fear of), but this watchfulness should not at all lead to a noise or a frustrated state of mind. If it does, one can affirm, on the proper stage in one's own self-study, that worry is pointless, be relaxed, just be watchful where it makes sense and ignore it beyond that. This is an example.

Have I myself had fear, since I speak of this issue? I have had fear just as I have had cold, and I think it is important for anyone to have gone to the limits of one's own mental abilities occasionally, such as by denying oneself sleep (or much sleep) for several days in a row, and see what happens. Of course I have done this, more or less on purpose, several times; and of course I have seen every kind of psychic state in myself, and sometimes it took a day or even five to get properly out of. With meditation, yoga, dialogic tools such as writing, one can always restore harmony, and with plenty of walking and healthy eating, the intellectual insights becomes shared with all the body rather than there being a strong division between the two. I would say that anyone who does this, instead of avoiding going to mental extremes, is on the path to evoke the artist in herself.

Women wanting to become artists have, traditionally, an extra challenge or two, compared to men: since women due to certain physical natural aspects such as roundedness are the natural object of esthetics, in several ways, women must adopt some of the hunter-attitude of men with regard to other women in order to relay the ecstasy of beauty in an artistic form. This may have been tougher in earlier times but the recent decades of willingness to assert the essential bi-sexuality of all people (as part of a pan-sexuality that is also iso-sexual, iso- meaning 'the same', ie, for oneself), should lead to a radical awakening on this part. In addition, I am aware of some scientific experiments on hormones which might indicate that the division of the hormones into male and female types are, perhaps, a great deal more complex than before thought. For instance, testosterone seems to be a sexual hormone for females, and there are weak indications that the converse is also true, that oestrogene is a sexual hormone for males.

Since a person must not try to be a politician at the same time as being an artist, it is important to quench all fears of bi-sexuality at once, for a female artist: to step radically out of any condemnation in this area, and evoke a willingness to enjoy pornography as elementary lessons in interesting anatomy about women. This entails, of course, a stepping out of the comparing ego that desires to be better than everyone else. The comparing ego would destroy the esthetics of anything one does.

Furthermore, to evolve such a radical transformation of oneself towards the artist, one must realize that one of the last places that such transformations are likely to be echoed, are in the so-called academic artistic institutions.

* The role of slenderness
and the question of whether
health is attractive

As Moshe Feldenkrais suggested, in his physical training programmes, the feeling of what is 'natural' may be conditioned, influenced, affected by habit and various impulses from the environment. To come to what is truly natural, also in the sense of healthy and supportive of life and joy, he suggested that we must teach the body to teach itself how to find the natural action spontaneously, after the habit has been unlearned. His subtle language speaks of a strong mind with deep insight and I have not studied his work enough as yet to account for it more just here.

However, what Feldenkrais taught in the area of physical movement I feel is relevant to dance, yoga, massage, and even further into more psychological tasks such as computer programming, the writing of philosophy, and thinking about life in general.

Is it healthy to be slender? I happen to think that sex is not vulgar but that being fat is vulgar. Because I am in love with movement and flexibility, and the shape of the human being when she can move about freely and act joyously, without any limits brought by styles of living, I see slenderness as a token for health. The amount of illness-potential associated with fatness suggested by numerous scientific reports is huge and so I wonder how it can be considered irrefutable by some that one should simply accept and give in to whatever fatness there is, instead of daring to challenge it strongly and speak of it as an enemy of a free and natural life. So I am not embarrassed by painting slender dancer girls and I know it is a potential of every individual, given an athletic discipline with regard to what is eaten and how

exercise is done, to be a graceful dancer in some way.

Now is it so that health is attractive? If we by 'attractive' means 'interesting' or 'can be an object of desire' then the answer seems to be: No, not necessarily so. For anything at all, even death, can be made into an object of desire by sufficient sick conditioning. However, if we ask for an attractiveness that goes deep and is pervasive, so as to evoke the heart, then perhaps the healthy and the whole is the only thing that is attractive.

So the exploration into intuition can take us into questions of what is worth having passion for; it can make us realize certain conditionings and show us the path to uncondition ourselves. In dehypnotizing ourselves from something like ungratefulness it is possible to affirm, suggestively, to oneself, 'gratefulness' (as Patanjali proposed). Is it possible to distill the essence of true attractiveness? I leave this as a question for the reader.

Yet I would like to add: it is my clear perception that a person, adult, who spends a decade in working on a non-tantric basis is literally killing himself or herself. There is little left of a person who is not actively pursuing the erotic every day, in a tasteful sense, connected to a feeling of awakening and intuition. The only way of real genuine rejuvenation from within is to engage, tastefully, the erotic in every minute of one's awareness and presence. The shock of seeing who one is, in the mirror after wasting one's days in this or that company or self-centered work, the shock of seeing the ego-marks on one's face, should make one get rid of all meat-eating, all lack of circulation, all lack of exercise, all lack of exploration; the pain of it should make one realize the utter danger of being corrupt, so that all corrupt work is laid aside; so that one awakes to the truth of holistic living and becomes a constant healing factor with regard to all, and also oneself.

* Passion, energy, sex
and freedom from attachments

With the quality of refutability, or humility, wrought into our statements about our psyches, let us enquire, think about life, so as to come to greater freedom, clarity, love, joy. We do not start by asserting an impossibility. Nor do we start by asserting that all good things are merely due to coincidence, or that life is inherently unjust, or that one has been born on the wrong side or anything of that. Society may be terrible but life is greater than any society and your life is greater than the social. You are also a cosmic being, a being unto yourself, and there is a greatness in that, no matter what newspapers say or don't say, no matter what parents

may want or not want you to become.

So can we know ourselves?

To know ourselves means, surely, also to understand something of emotions.

Emotions are not merely a genetic thing, not merely a damp bottled up, but something generated by attachment and moved by preconscious assumptions and images. You can have an image about something unreal and it can generate an emotion. You can tell yourself to like something you don't like and after a year or much before you start liking it.

So what is the influence of parents and upbringing? Are we slaves of our early environment? If we are, can we see that and so step out of that slavery? We can, can't we? If you see very clearly what is going on, slowly and carefully, you do not have to entertain the kind of emotions you were conditioned to have.

It is the duty of parents to set children free from them and from the environment, free to live life full of love and optimism and joy, a life on behalf of the future and of responsibility, the kind of responsibility that has generosity and happiness in it, not the dreary kind of responsibility toward a bible or a tradition.

Can there be a passion which has no seeds of attachment in it? A passion born of a bonding trust with all life, not just pieces of life?

Attachment, how does it begin? If we explore this issue we may find that it is at the root of practically every human problem. Attachment leads to a crushed psyche. People may argue that attachment is important, that it is a sign of love, but let us look at it calmly -- there may be something far deeper than attachment which can come into our life. Love may be something radically different than attachment.

You walk past a car, it has a gleaming shine to it, you imagine how it is to sit in its seats and float over the environment, feel free, go somewhere far, with a lovely voluptuous companion beside you, a guitar in the back seats -- or maybe it was a two-seater. You imagine this and there is a rush, a flow of pleasure, it saturates your body and you feel a tingling in your back. Then if you give the whole pleasure a full moment of awareness, attend to it, see to it that the pleasure comes, it is there, and it goes away, then there is no residue as a seed of desire or attachment.

However, if you experience a great pleasure, perhaps in orgasm, and you let the images combine with the pleasure and quiet preconscious thoughts start assembling around it making it into a nervous structure, then there is more than a sense of beauty there: there is also a sense of attachment. Of suffering, of pain, of not endless hatred but possibly lots of hatred because an attachment is something that defends itself in the mind, like a virus, is it not?

If you think love and attachment is the same thing then let me ask you: is love something you give or is it something you crave? If it is something you give, then is it something you give to an actual individual or to your own favorite image of this individual? You give it to the actual individual? Then what if this individual behaves different than your attachment -- you follow? That the person behaves not in according with your expectation? Then will you continue to give? Then you are not attached, if you give and continue to give, if you are generous and continue to be generous, if you have love and give space and embrace lovingly no matter what happens, no matter if you are turned down yourself. But if you cling and crave and give only on a premise, then that a limited thing, is it not? It is of the ego if you crave more than give. And if you really give you must cleanse and purify the mind of all stains of such things as lead to hate and immense self-pity.

If someone tries to think positively but at the same time nurtures greed and attachment, there will be a lot of constant disappointment and pain going on. This may lead to an obsessive positive thinking which loses touch with the inner tyranny of depression and evil hatred. The splitting of the mind can be seen in the body as an accumulation of fat and lack of grace in movement, and other strange things with the body not typical of health. To remedy this, we must be willing to say -- yes, let us intend the positive, but let us also be creative about words so as to fetch the negative current and do something with it.

We can use words to give attention rather than divert attention. And so the quest for a real passion, a real energy, which has not been tainted by attachment and the boredom involved in attachment is important. Do we see this, not as a theory, not as a mere intellectual idea -- do we see it now, in the very moment of thinking about it, so that we are also free?

Then what is sex? Can a girl have an immense lust and satisfaction and pleasure in having great deep orgasms with a boy and then be free from it? Or must the genetic background, the environment saying -- don't be a slut! -- the parents saying, 'it could be a child, so hold onto the boy' -- can you step out of the zillion assumptions surrounding sex, and not make a problem of it?

It may be a little easier for boys than girls to go from a sexual experience to another with not too great accumulation of attachment because the implications of begetting a child comes more dramatically for girls, since it is within them. With these implications it is only natural that they take it a little more seriously.

So the religious systems, in their greed for power over individuals, have largely institutionalized prostitution in the form of marriage and hopes to control individuals through this and other tasteless ways, such as the Christian churches surrounded by tombs.

In all their tastelessness, religious systems have mostly taken a stance against the freedom of sexuality and urged people to button it up, lock it up. For those who say that they believe in Jesus let them ask themselves: is it the words of Jesus that you believe in -- because they were rather free and anarchistic -- or is it Paulus and Augustine and their pumping up of the Jesus-character that they believe in?

Every flower, the joy of God expressed as Nature, is a token of sexuality; sensuality is intrinsic in the beauty of the divine, as any meditating person can feel when in the presence of peaceful wild Nature. Why should sexuality be read as anything less but God's wings, a heightened state of awareness, a deeper touch with our own buddhahood?

Energy and humour of a human being, health and intelligence -- is it not all connected to a very active sex-drive? Should not a person masturbate many times a day? Should we not actively teach each other how to stay completely pure and healthy and childless while having many sex partners?

All pursuit of human happiness must base itself, I feel, on a willingness to distinguish between feelings born of silence and emotions born of attachment. To the former belongs generosity, forgiveness, gratefulness, care, love in a divine sense, responsibility, wholeness, beauty and countless nuances all characterised by compassion and empathy. To the latter belongs the cognitively driven mediate emotions, the reactions stemming from an immature psyche.

If we harbour bitterness or hate, then we must admit to the fact, speak of it to ourselves, in our own private exploration space, and not hide it. Then we must, I feel, explore the grounds for these emotions. Instead of trying to convince oneself not to have them, let us bring ourselves in connection with some perhaps false grounds for having them -- not calling them false at first, but just seeing them.

When we are in touch with the grounds for bitterness it is possible to see that these grounds are false and that will aid the emotion in dissolving. When the noise of hate vanishes, the feeling of joy and its intuition or intuitive intelligence comes.

To do this, we must reconcile ourselves with the fact that in any processes involving consciousness, or mind, or emotion, there is such a thing as a combination of matter and subtler forms of energy, and it takes time or duration to change it. There is a way to speed the processes of duration, and that is dance or dance-like states in which harmony is nurtured. So a foundation for a fruitful healing or release of negative embittered energy is a nurturing of classical harmonious music, walking in nature, self-massage, yoga, dance, vegetarian food, candle-lights, and harmonious fairy tale-like TV programs, and so on and so forth. Good artworks grounded in harmony may be of important help, too. (Indeed my own paintings in yellow (shining), spring green and black have this pervasive intent of healing and harmony in them, as well as the intent to be inspirators for luck, welfare and wellbeing in a general way, meditative, good sex, rejuvenation and everything...!)

In any case, when some harmony has been emphasized, when dance has enlivened the muscles and enriched the mind with possibilities, the issues of emotional bitterness, hatred and so on can be faced more rapidly, with greater possibility of immediate and deep change. If it seems impossible or just too sad to meet, it makes sense with some affirmation or suggestive approaches, saying such things as 'gratefulness' repeatedly, meditating on such holistic-sounding words as Ama (representing love or the female power) and Rama (representing generosity in strength or the male power; these sounds are from my own intuitive whispering. One can also say AmaRama and wait a minute in silence before saying it again, about five times, as a general cleansing, I find).

In a summerly feeling, one can then focus on the issues that lead to pain or which feels related to bitterness and suffering, not with an objective to pinpoint an enemy or do further pointless scape-goating but to see the fallacy of engaging in any form of hatred whatsoever.

Then, after a suitable process of exploration -- perhaps also through writing -- there will be a relief. It is not always necessary, perhaps very rarely only, to actually write concretely about an emotional problem. Rather, it is possible to write such things as one could imagine that a wise person would say to oneself on hearing some elements of the emotional problem, but not the concrete details.

To get up from the depths of emotional trouble it is important to emphasize that an emotion may "grab" the self or the perspective of life so that everything else seems small -- while it is in actuality so that the emotion may be small and everything else vast -- and so the Popper notion of "refutability" comes in here also. The emotions that seem most absolute are those which are connected to tales which are sustained "against reality", they are described in a way which seems irrefutable, which considers reality and everything else but what is after all a petty emotion insignificant.

The grounds, then, for a lot of the emotional turmoil that a sensitive heart may feel characterises all of humankind, and has done so since time immemorial, may be a reluctance in human thought to grant subsistence to reality. These things can be suggested when one is in harmony but to someone who is crying her hearts out it may seem remote.

To be realistic about the extent and depth of feeling, a little emphasis on practical things, but no drugs, I would suggest, makes sense. Avoiding drugs means that the emotion is not connected to distorted brain waves which may be largely inaccessible except when in a drugged state and hardly even then. Alcohol is a strong drug inducing a lot of emotional changes, increases emotional vulnerability and a tendency to be insensitive to synchronicities and spiritual realities. It is no coincidence that the spiritual climate of the American Indians declined with their introduction to alcohol by the Europeans.

When a release from more concrete emotions have happened, it is urgent not to stop there but to continue the quest for a more general enlightenment or awakening in which the issue as a whole is understood in a sustained flash of insight. In this sustained flash or light the whole nature of thought blocking reality and putting its own reactions and priorities up as higher and more important than those arising from the ocean of goodness as whispers of love in one's heart is understood, one goes for walks and writes reflectively and paints and feels it over, feels whether it is possible to stay out of the turmoil of ego altogether and for always.

This enquiry will be free only if one does not let oneself believe in Tibetan masters, in Christian priests, in Zen masters, in Imam or Sufi teachers, in Jewish Kabbalistic teachers, in Hindi Tantric teachers, in Dao teachers, in Nietzsche propagandists, and so on and so forth. One must not think that a person who speaks with certitude about this and who lets disciples crowd around him or her paint the central person in glossy golden colors have any insight at all. There is no reason why this person should not be at least as nutty as anyone else picked from a crowd. If one goes on believing in reincarnated masters and their organisations one will only project the real work on enlightenment to some imagined future. One will then be stuck in a false process of 'becoming' instead of facing up to the potential and truth here and now.

When one leaves aside all thoughts of progress towards enlightenment by some

technique, method, teacher or scheme, then one comes down to the truth of looking for enlightenment in a series of central insights which all works to explode the ego. This is something which involves the kind of grace that comes in understanding that which one doesn't before understand in making a painting; it is like hitting on a new melody, seeing something in a way which is unique to oneself and which nevertheless is of such a general nature that one emerges a teacher.

Humanity is a big-brained and highly sexed race, requiring a culture of enlightenment. To sustain such a culture we must be willing to dissolve all aspects of our conditioning and cultures which are tainted with violence against life, violence against ourselves, violence against individuals, violence against our minds, violence against animals, violence against trees and so on. We must step out of our mis-cultures and nurture a new kind of culture in which essential all are teachers, all are, in a sense, messiahs, preaching quietly, being artists, showing what it means to have love as a sun to everyone else. If this seems strange think of how the cells collaborate in a healthy body: each is a light to the whole body, each takes a full responsibility, we might say.

But there is thing about pleasure. If you have freedom, what's the trouble about pleasure? Why not take pleasure in pleasure if you are free? If you have seen the rejuvenating great truth of freedom from attachment, can you then not enjoy icecream? Sex? Dance? Must you do some stale kind of Astanga Yoga incessantly and get as wrinkled as those who do any stale kind of atheletic discipline instead of being a winner in your own life, dancing and doing free yoga, free improvised yoga, free improvised massage, free improvised sex, free improvised reading and writing and exploration. How to avoid that these things become a thing of the ego? Simple. Avoid it! Avoid it by avoiding it. Avoid it by having the sustained insight in these things, keeping up the sense of learning about enlightenment always, looking into the nature of attachment -- not only in your own psyche, but in those which you relate to, through your compassion.

Is it ever said enough about enlightenment? Obviously not. I call on each individual who takes these themes seriously in his or her life to build up new ways of expressing things in a free, refutable, open society-friendly manner, to express the central themes of freedom from tradition, enlightenment and so on and so forth without putting themselves on a pedestal, implicitly or explicitly, without taking disciples, without speaking out of immature reverence for this or that individual but learning from K R Popper in being eclectic about what we are exposed to, looking into each proposition with a calm head and a warm heart, feeling over whether it holds or not... Do so, express a teaching, keep on improvising it and don't make a system of it. For the devil is in the system. I pray that nothing of what I do is a system, not even the following proposals, which have a flavour of the systemic perhaps, but which are still open. A language is open per se, per definition, and this is an open-minded theory about the universe. Good luck in your own explorations. This is the final chapter on questions of awakening your feelings in this book manuscript.

* Macroscopic nonlocality

Let us here look at physics in a way which sometimes is gradual and explorative way and at other times jumps straight to the heart (I hope) of issues which have been discussed here and there for the past fifty years or so. As a finale, we will give some illustrations of a formalisation in the form of three computer programs, three 'manhattan' programs as I call them, in an approach developed by myself in this context. The language manhattan, or manhattan forth, is a version of Forth by Charles Moore entirely adopted as a language of new physics as I have brought it on here. You can start it in Green Cat, which is ordinarily provided as CDRoms for PCs in this book as I sell it on my talks or exhibitions or both. It is open source, and the Forth compiler is based on some open source material from the Forth community, all included. The interaction with the 3d and XML by Daeron Meyer in his JGV module, as also included, is done by myself.

The first example, supermodel1 is automatically started (and suggested each time you click 'load a new program'), when the option 'manhattan' is selected from the 2d or the 3d menu in Green Cat.

The underlying research question is: How can quantum mechanical theory and general relativity theory be combined with a minimum loss of theoretical simplicity and no less at all of numerical predictions, in fact, the opposite, with additional new numerical predictions?

The chapter is written for spiritual people with a broad mind and sharp logic with a great deal of knowledge about all areas of physics; it has been rewritten many times and in the process some arguments are a bit upside down and other issues are dealt with in a way which I see could have been ten times clearer. Also, lots of repetitive introductory comments have been left intact before the meat of the theory is finally revealed. However, with these short-comings, I still feel it is 'doing the job' of providing a rational ground for a spiritual trust in synchronicities, karma and good luck and such nice things, on the basis of an openly changing four-dimensional (or more-dimensional than that even) reality which is in some kind of contact or resonance with the present moment. I find that it is not necessary to go to

hyperabstract mathematics to do this, as I have seen some physicists have done it; rather it is possible to look at the components of the main theories and bring them together in a way which preserves the empirical predictions while modifying these components to a new whole. It is not simple, this bringing together, because the refinement and scope and variety of empirical predictions demands a certain minimum simplicity (I think). However it has its simplicity as one becomes familiar with the way of thinking involved (it is likely to take some time).

The issue of whether quantum nonlocality can have biological relevance is dealt with in a minimum way here, but adequate to say: it is clearly a strong potential, even likelihood, if the basic proposals as outlined here indeed are hitting the mark. For the interconnectedness of quantum theory is, in this theory as here presented, called 'supermodel theory', given a very general condition to arise, a condition involving contrasting similarities and similar contrasts in a fluid and open sense; and the step from such a general condition (which must be tested, and indeed the theory leads to novel empirical predictions which can be tested, and as such the theory is refutable) to a biological relevance -- indeed, to a notion of 'macroscopic nonlocality' -- is not nearly as tall as it used to be.

Macroscopic nonlocality of a kind which is subtle (rather than coarse and intensive as in superconductivity) involves that the nonlocalities, even though they play themselves out through extremely fine levels of energies, are, by structural arrangements, 'amplified' so that higher levels of energies are responsive to them; and also so that higher level of energies can communicate to finer levels of energies. I leave it to biologists to work this out; there are many ways in which one can sketch such 'energy level amplification'. With the expanded type of nonlocality prediction as found in supermodel theory, there will be a motivation for such theorizing over biological nonlocality.

The theory itself will come out by reading this chapter forwards, backwards, sideways and not at all.

Let me however point out that the macroscopic and biological nonlocality I suggest that exist is of a type which is not mechanical or automatic but which requires extraordinary harmony along the lines suggested in all the foregoing chapters. I do not agree with those theorists over the human mind which suggest that the mind is at all times fully engaging in the nonlocal. Rather, the nonlocal is an amazing potential, a fantastic option, a great and important and vital possible realization. We can rationally think about this potential through physics and its empirical findings, when we theorize over them in such a way as this; however it would be immature to think that it 'explains consciousness' when consciousness is confused and rather mechanical and in little need of any explanation. It is rather the transformed consciousness it is about. Thus, my personal feeling of importance about physics as seen in this chapter is to show that a transformed consciousness, free from self or ego, with a grounding in a real and actual and not illusory contact with a boundless interconnectedness, is possible: it is not my presumption to declare that it is realized. I say this strongly because I do not feel that this point has been adequately discussed among a number of the rather sloppy discussions of nonlocality by hopeful mysticists which have reached the bookstores; and the lack of emphasis on refutability is also noted in some of these rather monomaniac works.

Let us characterize general relativity theory and quantum mechanical theory (GRT and QMT) in extremely simple ways, not presuming absolute completeness.

GRT offers a picture of a possible reality. QMT offers no clear-cut picture but a collection of postulates.

GRT is simple, however some postulates must be re-interpreted to a "metaphorical" level unless we want to revolutionize QMT.

For instance, GRT involves the ideas that local correlations is adequate to explain all correlations. QMT involves nonlocal correlations.

We can metaphorically accept local correlations as an idea if we apply it, not to the space-grid, but to the contents between the supermodels.

GRT denies absolute simultaneity. QMT as by Schroedinger uses absolute time. In our theory, we can accept that there is no absolute simultaneity at the space-grid (here called space-duration) level, but consider that the constellation of supermodels have

its own higher-level duration (to avoid saying "absolute time").

The nonlocal correlations in QMT will offer no contradiction, then, as regards simultaneity. For they will simply be interpreted as regarding a higher-level duration than the GRT level.

GRT involves, here

- * correlations in space-duration, so that the general relativity holds
- * this correlation involves, as we have said earlier, curvatures in space-duration
- * implying a similarity for different observers as to generalized motion aspects
- * implying an equivalence of acceleration and gravitation with each other and with curvature
- * curvature implying also a measurable slowing of duration within a process
- * curvature spreading wavelike with the speed of light
- * an emphasis on different parts of space-duration being manifest (for different observers), so there is no absolute simultaneity at this level
- * there is a natural unfoldment indicated by the organising factor of square of c (the square of the speed of light in vacuum) (the square abstractly suggesting two dimensions are involved somehow)
- * but (we say) light itself is considered to be a kind of nonlocal connection between the discrete points in space-duration

Whereas QMT involves, here

* correlations going beyond space-duration, or contact points between supermodels (of which space-duration is merely one, albeit a central and stable one), and this appears as "nonlocality" for an observer in space-duration

* these correlations are rather as "resonances", in that they can be entrained by such situations as the EPR

* but they can also be "discovered" without such initial local entrainment as in the EPR by virtue of the principle of movement towards wholeness

* an uncertainty or complementarity involving such observables as position and momentum

* continuity at factorized high-energy situations being, at closer inspection, a result of fine-grained quantized energy situations in which energy is related to frequency times Planck's constant in an indivisible sense

* in fact, the entrainment of nonlocality by local contact in the EPR situation can be considered a special case of the "discovery" kind of nonlocality -- ie, it can be considered a special case of an application of the principle of movement towards wholeness or PMW

A theoretical simplicity is thus achieved by PMW. But this is also leading to novel numerical predictions of a refutable kind, as required.

For neither GRT nor QMT allows a meaningful prediction of nonlocality arising due to similarities and contrasts over distance in the space-duration (and, indeed, anywhere in between the supermodels)

However, we must be clear in our minds that there are important differences between "our" GRT and, say, Einstein's GRT (such as we having a discrete space-duration instead of a continuous space-time), and so also for QMT. Since there is a little more

anarchy in the current physics as regards QMT and its dozens of alternative formulations and interpretations, it is less important to point out the particular differences between "our" QMT and conventional QMT.

Furthermore, I do not feel it is a complexification of our theory of supermodels to suggest that there may be more levels of yet subtler (or more "super") kinds in which, say, a range of "constants" even smaller than Planck's constant apply. So we will use an informal language which is as free from the sense of absolutes as at all possible. The fact that physics can progress should not lead us to be absurd reductionists in the meantime.

One of the most interesting concepts which emerged in the physics of the twentieth century was that of nonlocality or alocality, which is to say, some kind of immediate link or contact or connection or interconnectedness not limited by the speed of light and not typically causal. A form of direct relationship between anything and anything even across time, a concept which Einstein offered a great deal of noble resistance against and which only came to full light through laboratory experiments in the 1980s (by Aspect and others following up). So, at the moment of writing this (2004), physicists have not still fully digested the implications of nonlocality, a concept which breaks fundamentally with the forefather of early physics, Isaac Newton.

Is nonlocality only a special feature of some microscopic energy events? Or is nonlocality also relevant at a macroscopic level, including human beings? Nonlocality in conventional quantum physics is predicted to occur only at extremely specialized conditions; some of these may be macroscopic (like superconductors and supermagnets) but in general, at ordinary temperatures and with, for instance, biological material, it is not supposed to occur, generally speaking. Some physicists, including David Bohm and Roger Penrose, have speculated as to whether it might occur in a way which is directly relevant for the human brain. But they have not found solid grounding in the physics of the twentieth century for that claim. Several thinkers, interested in parapsychology and the like, including Erwin Lazslo, have sought to explain worldviews in which nonlocality plays a profound role; but this has so far not been taken seriously by active physicists, generally speaking, because -- quite simply -- there is no clear and obvious and good way to bring it into the biological sphere when one starts with something like Niels Bohr's work on quantum theory.

For instance, Niels Bohr formulated a 'principle of correspondence', which was a heuristic tool (I would say) to build up early quantum theory, and it goes rather like this: for energies far away, in orders of degree, from the extremely minuscule size of Planck's constant, quantum theory should not yield other numerical empirical predictions than conventional classical mechanics as of Newton, Maxwell etc. Of course, this correspondence principle must be regarded as an element of a theory and as such we must ask whether it has been tested, whether it can be tested, whether it has stood these tests -- in short, whether it is refutable and has not been refuted but in fact to some extent been confirmed. Alas, as a heuristic tool, it has not been considered in this light (very much).

As far as the emergence of the concept of nonlocality goes, it has been connected to extremely special initial conditions, such as in the Einstein-Podolsky-Rosen experiment (EPR for short); and even there it is arising only indirectly and in a way in which it took several decades to unravel the numerical implications of (through the work of J S Bell and others).

In the present chapter, I will elaborate a very different theory than quantum theory, which is having the numerical predictions of existing quantum theory and also of general relativity theory as special cases of itself. But this very different theory, utilizing a new concept -- that of the 'supermodel', a generalization of the concept of model -- and utilizing a new formal language, which I have created here and which is called 'manhattan' -- is such that it predicts pervasive nonlocality, also at a macroscopic level, in way which may plausibly also be relevant for human beings and biological living substance in general. So, there are additional (refutable) numerical predictions.

The computer simulation or visualisation through some formal 'illustrations' of the theory (the theory regarded as essentially informal, in line with the thoughts presented earlier in this book) is consciously simple and without glossy elaborations. The formal language I have invented to give rise to an almost 'alphabetic' visulisation, which does not conceal hard edges, does not throw in artificial things such as 'texture files' or 'light sources' but which keep things so

that we can think about the relationship of the visual to the (formal) text.

When I now create a new theory, the theory of supermodels, I do so because I feel that macroscopic nonlocality is the most solid way to perceive a rational ground for spirituality in a nonfundamentalistic open way, suitable to give strength to our dialogue and our explorations with a great sense of the possibilities of interconnectedness in between all living beings and indeed also between your own mental processes, including brain and neural processes, and that of, potentially at least, everything else in the universe. However, I do not claim that supermodel theory in any way 'proves' that such spirituality does have a solid ground; merely that it is a way of perceiving 'what is' in which it makes sense to explore the possibilities of this.

I wish to also state that I profoundly disagree with an element of the thinking of Roger Penrose and of Erwin Laszlo as regards the view of the human mind: as I see it, the extraordinary interesting phenomena of extra-sensory perception or ESP and the like, including psychokinesis, is something which may be largely an illusion to a mind which is not completely selfless, which has not completely transformed itself, gone out of the sphere of desire, greed, hatred, and dogmatism. The fruitful exploration of ESP and the like should, I feel, go together with an exploration of the freeing of the mind of illusions. Otherwise, it may be a mere expansion of the illusions of the ego, an expansion of the gullible nature of the mind. A healthy, transformed, awakened state of mind has extraordinary quantities of macroscopic nonlocality -- but the human mind, when ravaged by the disappointments of broken attachments and all that is not characterised by pervasive nonlocality. The human mind does have a potential, though. It is the potential for a kind of infinity and something going entirely beyond all local causation that is important, as an encouragement, we might say, for spiritual free and open exploration. The theory as here presented explains rationally why we may have such a potential but it does not assert that we have realized this potential nor that it is very easy to do so. As far as the biological realm goes, it is more a theoretical backdrop or worldview than any concrete theory. A biological theory may be erected within it, explaining, for instance, relationships between cell membranes or DNA vibrations and macroscopic nonlocality as flows from a supermodel theory; this is not something I have done here but it is logically a possibility. In fact, there is a great deal of such logical possibilities flowing from supermodel theory; so it should be of great interest to a great deal of people to test supermodel theory and find out whether it can fruitfully replace quantum theory and also general relativity theory as a foundation theory in physics, as I can think it can, of course.

Again, the computer illustrations are crude and simple, so that we can focus on the meaning of them, rather than considering them a kind of 'propaganda' for the theory. You are of course free to make additional formal illustrations and explore the present ones in modified forms, because, in this book, I supply the whole language, also on CDROMs, so that it can be performed by mostly any computer (insofar as it has well-documented video cards, suitable for early versions of GNU/Linux such as Red Hat 8.0).

What I have here is something submitted in the sense of popperian refutability for anyone to explore in a true scientific spirit, in freedom from dogma and tradition, with a both sharp and open mind, not gullible, not taken to superstition or callous scepticism. The sceptic, by the nature of the greek verbal root of the word, is one who looks around, wondering; this is what the sceptic Arne Naess has told me, and he is one of the persons who gave me advice on some of the more general issues involved in this investigation; so has David Bohm, and indeed I concur to some of his descriptions of physical processes but not to all of them; other acknowledgments elsewhere in this book.

I regard the supermodel theory as presented in an as complete form as it should be presented, generally speaking, in this book; and I will occasionally elaborate on features in the informal talks I am giving, regularly, in various continents etc, but do not think I will give more written descriptions of the theory nor develop the manhattan language formalism further. As I say also elsewhere in this book, I feel the foundation is adequate as an open, non-fundamentalistic, explorative, dialogic work in which each individual can make his or her own fruitful good contributions and in which an infinity of insights can come, so that we can come into a state of mind which is not merely thoughtful, but insightful, and through that insightfulness, also awakened, aware, and with a great deal of the energy of attention at all levels, leading to luck and good synchronicities in all areas of living. This is my intent,

and the spiritual sense of openness as exemplified in the refutability quality as indicated by Karl R Popper is in coherence with this intent, and more so than in coherence with the boring theory of science as propagandized by Niels Bohr and his disciples. One of his disciples, Kristoffer Gjoetterud, a physicist at the University of Oslo, was proudly against all such attempts as by David Bohm to think afresh the perspectives of Niels Bohr. Many physicists have regarded themselves as some kind of priests for a given gospel; their profession and perhaps international prestige among other physicist/priests made them into a most powerful group, exemplifying the exact opposite of refutability. The meeting with such fundamentalistic non-refutability-oriented, 'closed society'-oriented pseudo-scientists, in several countries, made me realize that just as spirituality is not best entertained by socalled 'spiritual organisations' so is science not best entertained by socalled 'scientific organisations'.

A scientist, then, is one who stands alone, against all group pressure, in freedom from seeking rewards and points of prestige from the intercultural sects of science, who emphases refutability in an open sense in as many parts of his or her work as possible, in respect for the greatness of the world beyond human thought. A scientist is one who actively fights his or her prejudices as well as superstitions, and who look for such thoughts as can be said to have a sense of affinity with reality, though with a fair amount of uncertainty in them -- a person who looks for fact whether he or she likes them or not. Such persons may not exist in any of the most prestigious scientific institutions. However, these institutions may contain a fair amount of fairly objective recording of empirical results. By looking at them, in theoretical openness, in the freedom to theorize again -- knowing that each set of data is compatible with an infinity of theories -- an individual human being, a scientist by intent and by personal practise, if not also by education -- can transcend the folly of all institutions. He or she will find in Albert Einstein's work sentiments shared with what I just said, even though Einstein at several points were stubborn and appeared closed-minded. However, Niels Bohr and his coercion must be regarded as uncalled for. Much of the cold, callous, cunning materialism which has flooded into science as a whole from physics came from the coldness and crudeness of the vague formulations of Bohr with his Copenhagen Interpretation; in commenting on the role of a work by a good-hearted scientist like David Bohm, Bohr wrote: it may be that, under certain circumstances, two plus two equals five. This is the type of sarcasm that drives and is the motor of the worst in science. As a scandinavian-born person, I challenge the paradigm of Niels Bohr and call for a total re-evaluation of the role of nonlocality in all of science, starting with physics, through the theory of supermodels as I here present for the first time. I call for a realization of what David Bohm and F David Peat wrote in their book, "Science, order and creativity": that the existence of 'paradigms' in science is indication of confusion and that good science is absolutely free from all sorts of paradigms and also from series of paradigms. Paradigm is a misuse of power. Science is about refuting misuse of power, refuting illusions, refuting superstitions, refuting over-sceptical thoughts, refuting shallowness, and creating the open mind characterised by attentiveness and willingness to challenge each and every thought. Science, through refutability, is spiritual and has nothing whatsoever to do with the mastery of a technique, a vocabulary or with the inculcations into the ways and rites of a cult or clan deeming itself 'scientific'. I call for a dissolution of the institutions and for a new generosity among thinking people to share their thoughts in a refutable way, hiding their titles and titulations if they have any. I don't have any titles to hide, fortunately...

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So, here I bridge some components of an essential nature from the two main branches of modern physics, general relativity theory and quantum theory; the former being primarely the work of Albert Einstein and the latter the work of a group of people not excluding Einstein but in which people like Niels Bohr, Louis de Broglie, Heisenberg, Schroedinger, Dirac and others have been dominant. There have been attempts, of only limited success earlier, to bridge these two main branches. The approach taken in the most-published version of these attempts has been heavily mathematical (superstring and M-theory). The approach taken by the forefathers of modern physics was not primarely mathematical; nor is this attempt primarely mathematical. Indeed, the chapter in which an exploration of infinity took place earlier in this book has led this author to a greater caution than ever as to the belief in a concept of socalled 'pure' mathematics which is, as if, devoid of essential uncertainty. Rather, mathematics is by this author seen as merely a bunch of heuristic tools and nothing of a foundational nature as far as making a theory

goes. In this way, the present theory as here presented, of what I call 'supermodels', is in essence an informal theory and the role of the formal language here invented, which also enables computers to show the visualization incorporated in the theory, is only to illustrate a few abstract components of the theory. The theory is by nature informal and the formal language is considered here to be an exemplification of some elements of the theory, while it is the informal exposition of the theory, beyond any such concept as 'axiom' or 'deduction', which is considered the essence of the theory.

As theory, it is very different from quantum theory (which Einstein, by the way, did not feel was a full-fledged theory in a real sense) and also from general relativity theory. However, the numerical predictions are identical for all tested areas. In addition, a component of refutability is invoked because some novel numerical predictions come out of supermodel theory.

Supermodel theory involves a discussion of a lot of rather complex reports from laboratories, as generalized through the formal structures involved in GRT (general relativity theory) and QT (quantum theory). It is therefore not simple for one who is not fully acquainted with all these reports. However, given the complexity of the essential processes of universe as suggested by these reports, it is a fairly simple way of summarizing them. A great advantage over GRT and QT is that the present theory can be fully described without reference to any specialised area of mathematical tool-making. The suggestions in GRT as to curvature etc are taken seriously but some suggestions or propositions in GRT are taken only in a metaphorical sense; much the same can be said of suggestions or propositions in QT. As theory, the theory is not containing GRT nor QT as special cases; as for its empirical numerical predictions, the empirical numerical predictions of GRT and QT are special cases (this discernment I have derived from a conversation with Arne Naess on the relationship between Newton's classical mechanics and Einstein's relativity mechanics).

The way I present it, I rely on the subtle mind of the reader to apprehend the fullness of the theory as a way of perceiving the world, and I do not make it too simple to derive numerical predictions from it. For my feeling underlying this work is that it can aid the sense in which macroscopic nonlocality across both distances in space and distances in duration can play an active role at all levels in creation -- also for human beings, also as synchronicity, also in a spiritual sense. So my intent is spiritual not technical nor oriented towards satisfying the compulsion among some physicists for yet more equations and the like.

The prerequisite for reading this chapter is everything essential about modern physics, computer science and 3d modelling, with an emphasis on the disagreements between the forefathers of quantum theory (and with Einstein); updated with recent works in the wake of J. S. Bell's careful destruction of portions of John von Neumann's 'proof' that hidden variable-theories does not work; and with a refreshing amount of talent to challenge existing ways of doing things along the lines suggested by all the earlier chapters of this book. What can come out of this, for the intent enquirer, is a rational grounding in an undogmatic sense of spiritual faith involving synchronicities, intuition about a future that is in open dialogic change and so on. There are elements here which those who engage in experimental physics of the quantum kind can work on so as to check the theory. Ie, it is refutable. It is one of the first fairly simple bridges between the numerical predictions of quantum theory and the numerical predictions general relativity theory which are also realistically refutable, and which carries its own formal language to illustrate parts of the theory. The theory in itself is regarded as a work of thought, because the view that the essence of a theory lies in equations is not at all shared in this book.

I would say, therefore, that it is inadequate and not even necessary to have a standard education in the current idea of physics as taught at universities to make good sense of the present chapter. One needs a different kind of background, which is best acquired not through exams and laboratories but by being willing to expand one's vocabulary both philosophically, physically, in terms of computer science and in terms of life as a whole, while exploring what may be a sense of undivided wholeness of all life at the same time; looking for coherence, having an intent of a unified vision in which nothing is explained 'away', a vision which is open to the dialogic feeling of all life and nature, a vision which allows the universe to be bursting of life and intelligence and which does not attempt to 'reduce' or 'oversimplify', and which nevertheless clearly and succinctly lays out why both the numerical predictions of quantum theory, by and large, and the numerical predictions of general relativity theory, by and large, make an awful lot of sense.

We give absolutely no credence to the prestige of a theory here; we consider everything refutable in a popperian sense, and look only to its numerical predictions and to the extent it has been checked; and then we ask: what might be natural ways to give ideational forms so as to incorporate a sense of the full patterns of these predictions? And that is indeed what it is to create a theorem -- a spectre or view of phenomena, of a reality or an actuality beyond our thoughts. In this, there is no a priori reason to give any credence at all to mathematics of any kind. Indeed, we must be wary of all rule-based schemas because the universe which we approach may well be both infinite and flexible in the sense: entirely beyond all rules. It follows from an earlier chapter, in which we look into the nature of numbers and collection of numbers when we 'go to infinity', that we must be extremely cautious about applying any concept of so-called 'pure mathematics' -- for all mathematics is 'dirty' with perception and uncertainty, we might say. In other words, mathematics is just a bunch of rules, a bag of tricks, and when we seek, as physicists, or as philosophers, to think about the whole of existence and not just a part of it, then we must not treat a bag of tricks -- ie, heuristics -- as something static or permanent or solid.

Rather, we must describe the perception process. In making a formal language, we are making what we may imagine to be a clearer theory but in fact we are merely illustrating the theory. A formal language can never capture the richness of an informal discussion. An education in so-called 'natural sciences' which does not give 90% focus on informal descriptions has lost its essence and has degenerated to a mere issue of being talented at skills in 'dealing' with issues in reality rather than perceiving them. Here, we challenge the whole idea that physics can be a profession and that physics has anything to do with what is taught as a profession, and regard the sentiments of Popper as indicative of a love of reality that is willing to challenge all priesthoods of science.

The chapter is written for individuals who seek a grounding of a holistic understanding so as to comprehend the vast technical developments which has come out of quantum theory and also the relativity theories, a holistic understanding which is entirely free from superstitions related to astrology and alchemy and such, and which is both undogmatic and infinitely aware of the immensity of the developments in modern science as to the study of reality; but who are unsatisfied with the fragmented approach both of the Copenhagen Interpretation, the general relativity-priests, superstring/ M-theory etc, and who wants a radical rethinking of the whole in a way which makes utter sense.

To me, this makes sense. It may do so for you, as well. I offer this not as a contribution to practical physics because practical physics has a tendency to become bombs and I want to offer that no support at all; I do not support the idea of military-budget physicist work, nor do I support the idea that the leaders of a fragmented paradigm should perpetuate their stale systems of thought by giving prizes, such as Nobel price, to each other -- this is but a solidifying of an elite which should never have been an elite in the first place. A refutability-friendly individual does not give a prize but rather engages in dialogue. Physics, by and large, is an entirely corrupt profession which is uninterested in reality and basically interested in supporting its own fragmented existence. However, the field is unique in that, among its archived and acknowledged content, there is something that no priesthood can deny, that nobody can reasonably claim is all a hoax, and that is open for everybody to think about: the numerical data from decades of studies by individual people in different continents of microscopic and macroscopic events, studied by means of relatively neutral forms of technology such as electron microscopes and telescopes.

It is a careful study of the numerical predictions without bothering to pay too much attention to the historical quarrels over them, in terms of which theoretical paradigm that should 'win', which gives something fresh, unique, and historically important. Anyone who in any sense supports a paradigm or even a series of paradigms is intrinsically a fascistoid person, not interested in reality but only in setting a standard, a vision, so as to ensure his or her own power. A paradigm is exactly what science is not about, what philosophy is not about -- a paradigm is a power structure and a series of paradigms is like a series of bloody revolutions; it is not that which thinking nor love nor affection nor enlightenment is about.

In this spirit, I set forth what may be a well-working theory of the universe in which both gravitation and nonlocality is encountered for, so that nonlocality also plays a role in biological phenomena and also at the human scale. I believe that this

may be the first time such a programme has been carried out to the extent it has been carried out in this book. This is not to attempt to create a new paradigm at all. Rather, it is done in the spirit of suggesting ways in which reality actually may be in itself, apart from any model of it. These open suggestions involve refutability. They are, in other words, postulated facts.

What is a fact? A fact is a thought, of course, but also more than just any thought: it is a thought which has many points of contact with something beyond thought -- actuality, reality, 'what is' -- and these points of contact are so that there is an element of harmonious synchronicity or matching of patterns of contrasts and similarities in them. Ie, the patterns of the thought is in some kind of open correspondence, coherence and affinity at many points with something which it refers to; and it is so that it aids perception in an unbiased way. From a mysticist point of view, a thought used by silence is (or may be) a fact.

The present theory, as offered, does not succumb to any dogma that physics or a theory of the universe or the world or whatever one calls the manifest level of existence as it appears to us human beings 'must' be based on a notion of 'energy' nor of 'time' nor of 'space'. It rather begins on the notion that it is possible to make some sense of a great deal of the abstract patterns of the reported numerical experiments and that we can, with a suitable sense of refinement in our minds, and a dialogic, explorative attitude, be able to extract what is data so as to throw away theoretical garbage.

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I think that most physicists who are in the process of thinking about physics and not just 'doing' it, and who has an understanding both of J. S. Bell's inequality theorem and of the empirical studies of it and the EPR experiment, by the work of Aspect and others in 1980 and so forth, would agree that if all this work had been done -- by some wierd magic -- before 1915 or so, then the discussions about the foundations of physics between Niels Bohr and Albert Einstein and between Niels Bohr and other people in his group, including Erwin Schroedinger and Louis de Broglie, and between these well-known physicists and other, less well-known but influential physicists in their own way, such as David Bohm, would have taken radically different turns on many crucial points.

It may be that physics would have taken a turn as described in this chapter, if by some yet more wierd magic computer language formalisms were available at the time.

Indeed, my starting-point is something like the EPR experiment; we will see the theory as unfolded, as described as a combination of suitable elements of quantum theory and Einstein's general relativity theory, both modified, illustrated by means of a formal description of three situations:

* An EPR-like situation

* An EPR-like situation with gravitation (doing simply what M-theory is doing in an overly complex way)

* An EPR-like situation in which the initial conditions have been changed, yielding a new empirical prediction which can be regarded as regarding the physics theory as here presented, which I call 'the theory of supermodels', as refutable

The third situation involves, in other words, a clear-cut, realistically checkable empirical prediction which flows from the theoretical premises as here outlined. The initial condition will have been altered so that the idea of the sole principle used in supermodel theory, the principle of a tendency of movement towards wholeness, is more explicitly seen to be operating. In fact, it was used in all three examples; but the implications of using it is that a great deal more nonlocality can be predicted to exist in reality, and this is a refutable point, of course. With freedom from dependency of local contact for nonlocal relationships to arise, we sketch a worldview in which nonlocality is pervasive. This pervasiveness is such that we would naturally expect macroscopic nonlocality to be a factor in cases where the macroscopic structure is sensitive toward smaller and smaller energy structures within itself. Such sensitivity can be thought of as a kind of amplification of subtle fluctuations, rather as a radio amplifies the electric fluctuations in its antennae; we might surmise that the brain structure and the body in general, of human beings and other animals, is like this. However, only in the context of a unified

theory in which nonlocality is accounted for in a pervasive way can biologists look for nonlocality in a theoretically clarified way, with regard to physics.

It will be noticed that there is no dependency on earlier forms of mathematics; however the treatment will be very abstract, and indeed the treatment of the EPR-like situation is on a purportedly nonconcrete level. It flows from an intuition about physics, derived also from many many summers of having conversations with active physicists over these matters (see acknowledgements in the beginning of this book for the most influential of these conversations), from attempting a number of computer modellings of these, and from an attempt to reconcile intuitions on the dynamism of duration and time in daily life with these fundamental musings and possibilities beyond all dogma in physics. I am definitely an outsider to the field and I am definitely positive that by means of applying the popperian approach to science, any outsider to any field of human thought can make a worthwhile contribution. This is the result of many revisions indeed and I feel that this has found a form which is adequate to account for the whole of the essential physics of the twentieth century in a new key; the language as here unfolded, the manhattan language, is proposed as a native language of physics, and provided here in terms of both documentation and full open source code in Java 1.1.8 and with the three example programs or formal models, in Green Cat, which is included on the CDROMs inside this book.

This somewhat large chapter, beginning with informal explorations of the present state of physics, continuing with elaborating a new concept of what I call 'supermodels' (to distinguish them from the concept 'models', to which they have a few similarities, though), and finishing with three such models in a new formalism, a tiny but excellent little programming language made for the purpose and included on the CDROMs with full source code make up what I feel is an adequate, however open, theory of the universe.

I am sceptical, though, with regard to a number of the preposterous, presumptions, grandiose claims made by a number of the most so-called 'prominent' scientists of this day. We regularly hear of calculations of the 'age', so-called, of the universe, as if it were a matter of some adjustments of some figures. We regularly hear of so-called 'fundamental forces'. We regularly hear of so-called 'fundamental building-blocks' of the universe. And, indeed, we regularly hear of theories of everything which do not have any of the most essential criterions fulfilled for what it means to be a scientific theory. Speculations of a very free kind, hypothesis of an ad hoc kind, are not science even though prominent scientists agree about them! Science has nothing whatsoever to do with agreement. Agreement may be collusion. The science that I talk of is that which has, in each statement, a feeling of the insight which can also have the quality of the refutable.

I think that most things said by so-called 'astronomers' and so-called 'physicists' about the universe is completely off the track. They constitute something like a church and when the priests and popes of this church speak, the newspapers quote them with ridiculous reverence. We know hardly anything about the universe which we inhabit. The sole physicist of prominence, in recent times, who have said anything of this nature, is David Bohm: there is infinitely much about matter which physicists don't know, he said. Einstein, whose views of the universe were rather much at odd with Bohm's, said, in a similar vein, as far the theory of scienc goes: a theory which is not uncertain is not a scientific theory. On the Copenhagen Interpretation he said: I do not find that the empirical findings of the quantum type can justify a change of the 'theory of science' itself. And when we talk of uncertainty in a theory, we do not at all mean the so-called 'uncertainty principle', which is postulated with idiotic certainty. The uncertainty principle should be called the uncertainty relation or indeterminacy relation and it is a theory, or a component of a theory, and this relation is of course not exempt from refutability. However, since it does seem to say something essential, it means that it may not easily get refuted; that is not to say that it is by itself some kind of exception from the overall theory of science which we can legitimately apply to all that we do with regard to the understanding of the universe as a whole or in its particular: any postulate is a theory, any theory is uncertain, and so also a theory about uncertainty.

Niels Bohr was a meddling, confused thinker, overly concerned with bridging people's independent approach into a kind of political group which could oppose the paradigm set by Einstein. Niels Bohr tampered with the theory of science is postulating a principle of complementarity as something other than a refutable component. He tampered with the theory of science in asserting that we should not try to further

analyse what goes on between measurements. He tampered with the theory of science in putting forth the so-called 'correspondence principle'. The fact that he was a genius, on occasion, in able to describe features of the atom which baffled even Einstein does not mean that Bohr was a genius all over; at most points his writings win only because they are vague, imprecise, and hopelessly without the clarity that we must require of a refutable theory. The paradigm set by Bohr must be challenged just as much as the paradigm set by Einstein or anyone else; science in essence is about a love for reality that makes one speak clearly and undogmatically in a way which has refutability all over. Much bad science came out of Bohr's work and some bad science came out of Einstein's work. We should not wait a thousand years to admit that; just as Karl Popper pointed out that we should not have been so ridiculously reverent to Aristotle and Platon when it is clear that both philosophers were backward in their ethics as regarded individual human beings, such as those called 'slaves', and when the latter was clearly in favor of dictatorship. It is reverence for fanatical and idiotic productions of thought that makes people get killed; we must challenge all false reverence. Bohr was a powerful manipulator of other scientists, as is clear for anyone who carefully reads the stories of how he coerced various people, including Louis de Broglie. Bohr was a politician more than an honest scientist, but he had streaks of genius which makes it hard to separate the golden bits from the many rotten pieces he shot into the core of science.

I do not mean to say that Popper got everything right either.

The young Popper was foolish enough to attack Heisenberg's uncertainty principle in a way in which he exposed his lack of understanding of nonlocality: Einstein put him right in a letter which Popper, humble to fact, reproduced in later versions of his early work, *The Logic of Scientific Discoveries*. I do not much like his early work, I lack in it the subtle, ethically oriented, holistically careful mind of the wary Popper in his two-volume production which I have spoken much of in this book and will now set to work in my own theory in physics.

Having challenged the authorities in a way that I deem honest and proper, honest to my own perception after a great deal of careful enquiry over a long long time, honest also to my feeling that the present account is fairly unbiased -- even unbiased by my friendship with David Bohm -- I will now proceed to elaborating the theory slowly and without making it easy for those who wish to make a system of it. For it is no system. It is a living perception and it takes place in me even as I write these sentences; it cannot be summed up as folly 'axioms'; it has no main equation, of course. It is idiotic to see to extract that which cannot be extracted. Rather, it is a fullness of coherent relationships between expressions, thoughts, feelings and actuality as a whole, penetrated by refutability.

I abhor the idea of a system. A theory of a living universe cannot possibly, to my mind, be a system. So I do not approve of the notion of making a scheme of a theory. Please do not summarize the theory by means of a scheme, if you wish to summarize the theory; rather give your own fresh understanding and then acknowledge your direct source so that people can look there for themselves. To put it in another way: if you summarize it, it is a lie.

As I said, this theory is brought out in an explorative manner, gradually unfolding the concepts and main issues more and more. (I deem that proper as regards an unfinished universe ;)

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The concept of the "supermodel", as here introduced, has the same relationship to a text as an equation has to a number, generally speaking. Unlike models, supermodels (now not speaking of fashion) are self-active and recognisant of other models, and so create reality by their interactivity. It is more active than the notion of a 'model', has more features of some kind of inward level of sensitive subtlety and so on, and may even be considered to be essentially infinite; and indeed have some feature of consciousness of feeling. That is, it is a nonreductive concept in which mind is in some open sense given a priority to that of matter.

So we see that whereas the open concept of a 'model' has a role in science, for scientists, so as to help perception; the concept of a 'supermodel' is rather more like the notion of 'correlation field' which I postulated some summers ago in the little book, *'Sex, meditation and physics'* (though it is somewhat enhanced and refined here). Supermodel is a self-active perception-like structural event which

relates to other supermodels and through them possibly, in a self-referential way, also to itself; with features such as frequency and the like, however reinterpreted without a prior designation of space, time and energy. A supermodel is 'super' to models in that it is self-active, it is somehow perceptual or involving a pattern recognition of similarities and contrasts and indeed also a pattern enforcer. It is having an independent existence of the minds of human beings.

We will entertain this concept, and look at the larger abstract patterns of numerical predictions of quantum theory and general relativity theory (which is by and large two divided schemas in conventional modern physics), and gradually emerge the theory as a whole, illustrating it by means of three formal examples, the EPR-like situation, the EPR-like situation expanded rather effortlessly with curvature to show the power of the wholeness of the theory, and the EPR-like situation altered into a novel situation with novel empirical predictions which can be checked by experimentative physics. If these predictions do not hold, then the theory will be dust and ashes.

One of the characteristics particular to supermodels is shared with the idea of a computer program (but not the other characteristics, at least not in full). This is the characteristic which we may call 'behaviour'. Another characteristic, which we may call 'flexibility', is not shared with computer program texts, generally speaking.

Behaviour involves the capacity of a supermodel to incorporate a stimulus (which we may call its 'female' aspect) and to emit a response (which we may call the 'male' aspect, thinking of sexuality).

Evidently one can also speak of the behaviour of a computer program.

Flexibility may be emulated by a computer but not fully realized in a digital context.

Flexibility may also be said to be a qualifying characteristic of the behaviour characteristic, for it says: given a stimulus (if any) it is no way to be sure (ie, absolutely certain) what, if any, the response might be.

Flexibility leads one to speak of tendencies, though the tendencies may be stable in some cases as seen from the perspective of, say, a human being in an airplane. The construction of the airplane depends on stability of such things as the relationship of mass to aerodynamic lift; it would be absurd to insist -- on a practical level, that is -- that such things fundamental to its design are mere tendencies. However, it is strictly true if the supermodel theory is held to be valid, as we shall see.

Arne Naess, in several conversations we had on the nature of causality, emphasized to me that he considered the concept of 'emergence' to be fundamental. He explained it thus: in daily life, just as much as we apply notions of cause and effects, we nevertheless grant that even if all the causal conditions are present for something, say X, may happen, it may be that something else emerges. This, he emphasized, can be argued to be a worthwhile concept also at a level where we discuss a theory of the essence of causality.

Flexibility is a vehicle for something operating in or on the supermodels, and which in a sense is involved in their very nature and certainly in their process of coming into being, and that is a principle of a movement towards wholeness.

This movement operates through the flexibility aspect of the supermodels. However, the flexibility aspect is not -- or at least cannot be asserted with certainty to be -- only a vehicle for the principle of movement towards wholeness. In addition, it may simply be a flexibility -- as "for its own sake". Ie, it may be a sheer openness in reality, or we cannot exclude this possibility.

The principle of movement towards wholeness is best seen indirectly rather than directly. Ie, it is best seen when it has exerted itself rather than by trying to cause it to exert itself. Of course, this is a necessary by-product of associating it with a feature of flexibility which is in itself indeterminate. It is not a law, strictly speaking.

The principle of movement towards wholeness suggests that when similar contrasts and

contrasting similarities (of order, pattern, process or dance etc) can be radically enhanced in their degrees by a slight turn (or change of some kind) then the turn is likely to occur.

This, then, is an art rather than a technique if transferred to the human realm of action (because of the infinity of both premises and effects).

When we want to formulate a theory of the universe based on this concept in the present context we would like two characteristics to be fulfilled (at least): (1) relationship to presently acknowledged, well-studied facts (or even some of the ideas involved in theorizing over their summaries, such as 'curvature in four dimensions' to account for 'gravity'), and (2) refutability in the sense of novel contact points with reality, in a popperian sense.

(Naess would emphasize that a theory is relatively remote from empirics in the sense that many steps of additional assumptions are usually required to 'go' from a theory to something like a laboratory study and 'back', and so one cannot easily speak of falsification of a theory but merely 'instances of disconfirmation' or 'instances of confirmation'. However while this is probably an accurate description of how it often is, I would suggest that the concept of refutability (more than the earlier concept of falsification) is a quality which can pervade in principle all of how we formulate and think of and feel about a theory, and that this is a worthwhile and realistic goal. Whether there are many or few contact points with laboratory studies and whether an instance of disconfirmation amounts to something like a refutation is in each case a matter of intuitive evaluation and dialogue.)

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You may have heard of the distinction between an 'algorithm' and 'heuristics' in computer science and related areas. An algorithm is a route procedure, a bound fixed set of rules so as to yield something based on something else in a determinate manner.

In contrast, heuristics is a more open set of rather suggestive rules or approaches which are not guaranteed to work. In a sense, they have something of the feature of a scientific proposition that Popper calls 'refutable', ie, they may work or not work.

Heuristics, then, is something like an algorithm but with a component rather in tune with the flexibility that we introduced for the concept of a supermodel.

When we take this as a foundational concept of a universe theory in physics we see that indeterminism comes in through a flexibility that look a little bit like heuristics.

A physicist would naturally ask: where in this approach do we find something like an einsteinian spacetime?

From this point on, I regard the hundreds of volumes on classical and modern physics as of the twentieth century to be the acknowledged background for our discussion; these include a multitude of reports of laboratory experiments and these experiments are considered primary to the theoretical musings around these, for we are not dogmatists, are we?

The answer to the question in the former paragraph is that a spacetime is an order which may perfectly well be represented by a single, though exceptionally large, supermodel, of an exceptionally stable kind as far as its overall structure goes, but with a natural ingredient of curvature.

The curvature comes into the supermodel called spacetime by means of certain easily changable elements within that supermodel.

Other supermodels relates to this supermodel so as to furnish it with content and also receive information as to energies or masses. Remember that a 'supermodel' is active in a subtle way, and that its activity may relate to other supermodels. Since we are giving a vision of the universe in a unified sense, we are proposing that supermodels make up 'what is', in some rather nonreductive sense. Yet since we have purportedly brought in vague features of supermodels, such as infinity and flexibility, this is not a systematic theory of the universe nor is it a clearly

reductive one and it is certainly not deterministic. The word 'vision' is not entirely irrelevant and indeed something of the essence of the idea of a theory involves just that. The view of a theory in this regard is shared with Einstein more than those of 'the Copenhagen Interpretation'.

As for dimensions, let us appreciate that when an architect constructs a house then she or he must generally work with three dimensions, of depth, height and width, but that the actual construction of the house, physically, involves a fourth element, the duration of the construction process, which can be imagined to be a kind of fourth dimension. (I referred to the notion of duration also in the introduction and mentioned there that Henri Bergson did important work on this concept; he is one of the few in the history of well-known philosophy in Europe who has done so, and in that regards he builds on Heraclit more than on the fascistoid and pseudo-dialogical thinking of Platon or Hegel; however the emphasis on the permanence of movement is found in many non-European philosophies, including that of the Dao and of the Gunas; I am grateful for discussions with Nicholas Hagger and Henrik B Tschudi, several times, over these issues).

I wish to qualify the metaphysics involved here, in the concept 'spacetime'. The idea of four-dimensional space in which some kind of process or duration is attributed to the fourth dimension is, also to me, elegant, highly interesting, and most plausible.

So I would suggest, in an era more welcoming to indeterminism (phrased as a negation) or an open future (phrase as an affirmation) that the four-dimensional space in question is not to be called spacetime or time-space but rather something else.

Let me make this a little more precise. Many elements of Einstein's work involve a references to duration or process events so as to look a little ahead or a little back with regard to any one process. However, due to the idea of relativity, there is a particular form of openness, so that there is no preferred point of reference. Part of the elegance and overall simplicity of Einstein's work is that it is asserted that all reference frames are in some sense equal.

The notion of relativity did not originate with Einstein but he was the first to carry it out seriously as a foundational concept in a great deal of physics, and not just for some phenomena.

So it seems that some reality of some sort should be attributed to something more than merely the manifest present or manifest moment for an 'observer' or for a reference frame.

However, the type of entanglement of probability densities found in quantum experiments suggest that whatever the future of a process may be, it is perhaps rather open in some ways, although there are tendencies for it to be in this or that way.

Einstein suggested that this openness was an indication that physics lacks certain developments and in principle it seems that he could be right although at least the present prevailing intuition (and consciously applied assumption) among many physicistists schooled in quantum physics is that there is at least some genuine fluctuation involved in the formation of what is to come.

I have encapsulated this openness by suggesting the essential role of flexibility in supermodels.

However, I think it is wise to keep an open mind as to what extent this freedom of fluctuation may be found to have more subtle patterns in the future, Heisenberg's uncertainty principle proposal notwithstanding.

For while Heisenberg has proposed, with Bohr, that there are certain complementary attributes in reality of which a further anylysis is impossible, and in particular pointing to position - momentum experiments such as in the double slit situation.

What is the case, however, is that the Copenhagen Interpretation, socalled, of quantum theory, involves certain sentiments which does not invite the idea of falsifiability or refutability on all points of their physics, only on some.

So it seems adequate to say that only some parts of the Copenhagen Interpretation are scientific. The rest must be regarded as a theory of science or a metaphysics of a non-refutable kind and we must be at liberty to discard it exactly because it is non-refutable (rather like Freud's theories of mind). And so we can see here that part of Einstein's reaction against the approach of Bohr was not merely as to his physics but as the metaphysics and/or theory of science that Bohr sought to lay as a foundation for physics.

The many universities and academic institutions that have since adopted a simplified and technified version of the Copenhagen Interpretation have then contributed to a situation in which we have a nonscientific physics in part. We see that the institutions calling themselves scientific in this sense are in need of a revision of their foundational practise if Karl R Popper had it right, as far as I can see.

The approach I would suggest is that a reformulation in as explicit terms as possible of all assumptions and proposals involved in all present foundational physics are put forward, so as to be able to change the thought-content of these toward the type of statements that have components of the refutable quality, or the scientific quality, in them; and then, having changed thoughts, new formulations can be made. I offer these proposals in this spirit. If some think them irreverent of present academic institutions they are not irreverent of Popper's proposals for what is the best foundation of science, as far as I can tell.

In short, then, there is a flexibility which is not necessarily the same as the indeterminism suggested by Niels Bohr. This indeterminism may or may not hold. The flexibility component may also hold or not hold but I do not suggest it is the same.

For the indeterminism suggested by Bohr involves a tight connection with the Heisenberg uncertainty principle and the flexibility component that I propose is not a vehicle of any such proposed principle.

Indeed, I would suggest that one must be very careful in proposing anything such as a 'principle' in physics, because it sounds like something irrefutable and beyond theory.

So in the physics foundation that I propose, there is but one such principle, the principle of wholeness, and I will emphasize ways to put it in a refutable form so it can be scientific and I will not, I think, propose further principles -- not even the speed of light or relativity. Rather, these other aspects I will refer to as theoretical by-products or as 'tendencies', even if extremely stable tendencies.

In particular, I suggest that the central role of light can be given a theoretical explanation in terms of the supermodels as follows:

Let light not be any particular kind of mass or particle in itself but rather let it be the notion of a connection between anything and anything else, most generally. In particular, let it be the connection that may occur, as if nonlocally, between two neighbouring positions in a spacetime grid. We will return to this idea to see how it can go together with the notion of the photon quantum.

Going back to what I said about the importance of being careful not to include the idea of all of time, as the quintessence of all (possible) change, in an idea of the fourth dimension, but rather have a notion of a somewhat flexible future which nevertheless has some component of reality to it in alignment with what follows from Einstein's ideas, I will suggest that, instead of spacetime or time-space, we say space-duration.

The space-duration has a reality because if it has no reality then it is hard to allow for such patterns as accounted elegantly for in general relativity theory, in which the manifest moment of one process may refer to something which is not the manifest moment of another process, and vice versa. We need an expansion of space beyond the 3d and it involves somehow something future-like and something past-like but we agree with the sentiment of quantum theory that it may not be THE future but rather A future. So this we can call space-duration.

In the space-duration, there should be, conceptually speaking, room for probability densities.

What then of the concept of time? In a conversation with Holger Bech-Nielsen at the Copenhagen Bohr Institute, he suggested to me that time is the quintessence of all change. While he drew other implications from this general proposal than I do, I will go along with his suggestions and then say that we do not have a proper theory of time and our musings about 4d is nowhere near of being an adequate theory of time. Rather, the 4d of present physics is a theory of certain sub-processes in time and these we can more modestly call 'duration'. This is my proposal. It would be too pretentious to speak of 'time' in present physics just as it would be too pretentious to speak of the existence of God based on current relativity theory or quantum theory. (I am grateful to discussions with physicist Astri Kleppe on related themes on a number of occasions.)

So, I will qualify what I said a little earlier, that space-time is a supermodel: we can now say that space-duration is a supermodel.

Space-duration, moreover, is a supermodel that in part has its own connections, grid-wise -- proposing here, also in alignment with proposals in quantum physics, that space is grained rather than continuous - and also can have connections beyond itself, to other supermodels.

The connections within the space-duration is by virtue of the typical kind of structure and activity that can go on in any supermodel and not by any arbitrary or artificial ad hoc hypothesis created for one supermodel.

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We will now, in this explorative unfoldment of the theory, take a break in the questions of physics to focus on questions of a language of physics. I do not think that the revised tools of Newton and Leibniz into partial derivatives and differential integration are suitable for providing a full overview over the implications of the findings in experimental modern physics as of the twentieth century. I do think that an entirely new kind of physics language is called for. In bringing computers in, I do not see computers as merely a tool to play out the consequences of that old mathematics, but rather as providing a sense of a more dynamic and higher-level way of thinking about science. In this light, I do appreciate some of the impulse of Wolfram, the man behind Mathematica and who has produced some suggestions on what he calls 'a new way of doing science' in a recent book that I looked at; I do not, however, see in his work so far a qualified understanding of the real implications of nonlocality nor any sense of the actual notion of infinity as brought out in an earlier chapter here. So I do not concur with the exact form that his work has taken, but, for the sake of plurality, I think his independent style and impulse is lively and worth the while. The impulse of Erwin Lazslo, while much more informed on the nonlocality aspect, I also would call on in the name of plurality, though I do not think his appreciation of the levels with which nonlocality is organised for all phenomena (as I see it) is adequately played out in his (perhaps over-focussed and not entirely well-informed) distinction between the two types of waves he operates with in his recent writings. Again, I recommend the dialogical importance that people outside of celebrated physics communities doing independent work; but it is important that we do not lose hold of the refutability aspect, and Lazslo does not seem to emphasize the refutability enough of his science concept as far as I can see.

As for superstring theory, M theory, and the like, I regard them as important in some ways, and interesting in some ways, just as Shel Drake's theory of morphogenetic resonance and Bohm's theory of the implicate order; but as yet not a fully insightful production which is a theory of science proper. M theory has components of interest but it is not adequately simple nor clear in its informal conception; and therefore it does not matter (much) whether the formal achievement is what it is -- namely that some formal bringing together of general relativity theory elements and quantum theory elements happens abstractly in it. It is not a theory as much as a complex and rather intelligent exercise in equation-cracking without much reference to reality nor to any coherent understanding of reality. Equation-cracking is interesting but it is not the essence of insightful physics, of course.

As to the manhattan language, the data is described through another standard scheme called XML, which is nothing but a simple generalisation of the syntax used in the worldwide internet, called HTML. XML is literally 'extended HTML' and involves the idea of a rather free structure with segments beginning with <name_of_segment> and finishing with </name_of_segment>. The sense of freedom echoes the rather anarchistic

or networking impulse of how I would like physics to be represented (rather than as a hierarchy).

The XML parser used here is written in Java 1.1.8 (like many other things in the Green Cat which I have put together for you for this book), utilizing open source GNU GPL code by Daeron Meyer, also included in its original source form at the CDRoms as according to its license; the XML parsing with its graphical 3d visualisation is one part of the manhattan language; the rest I have written myself. To be more precise, the changes of the XML is in a new language specifically made for a unified theory incorporating the essence of supermodel thinking, with luck.

Each moment finds its reflection in an XML-file. Each moment, or manifest present, as seen from one observer, can be changed as for its perspective, scaled etc, before one proceeds to the next moment (by the click of a button). This is in order that the actual motions can be studied in slow detail; there is no needless plastic-fantastic elaboration or glossifying here; I have played before with many such 3d software solutions, but eventually I came to respect most that which shows the actual dots or lines or whatever with no further ado. For here lies the space to think clearly, to find out the essence of what we are thinking; but if we polish the corners and shine flashy lights and apply 'texture' image mapping and all that, we are providing a temporary illusion which prevents simulation clarity rather than enhancing it. That is why I have found the very many available packages of the '3d animation' kind uninteresting as far as a language for physics goes.

A single manhattan program (we can say manhattan without a capital 'M' all the time as is the convention in some programming languages like Larry Wall's perl) is thus a dyad, it consists of two texts, a text which is the data and a text which is the active program part. The data part is whatever.xml and the active or interactive part must have the same name but a different extension, namely .txt.

XML is merely data structure, not a programming language.

Below you will see three .xml examples, and three .txt examples. The manhattan language proper is mostly the .txt part but in a broader sense it includes this particular .xml structure also. The xml structure is rather self-documentary and easy to see through; that is why I have included it.

When you start up the manhattan language, it automatically loads the first physics illustration, which is called supermodel1. The file supermodel1.xml together with the manhattan codes in a different file with the same main name, supermodel1.txt, constitute the startup pair of files when we start up the manhattan formalism simulator.

I believe that the programs or formal illustrations of the supermodel theory are self-explanatory; especially so when you also do experiments with the computer as well as with your own thought, perhaps also changing the syntax, seeing what happens; making alternatives. You may want to expand manhattan as language, and you will find that Green Cat is easy to change in almost every important sense: for everything in it can be recompiled almost by a click of a button or something like that. It does presuppose that you know Java 1.1 from Sun Microsystems, which, by some criterions, may be considered to be the first absolutely global graphical standard language; it is entirely free, and open source alternatives to Sun Microsystem's own compilers and the like exist in plenty. I considered simply giving the models in the Java language but I felt that all the dozens of languages I have made for myself suggested something more concise, sharp, to the point, as a finale in my career as far as computers go (for now I turn to painting and informal talks and computers will only come in for occasional fun, I think).

The dyad of .xml and .txt constitute each formalisation, as I said. What is the relationship between a formalisation and a theory?

I regard it, along with Popper, essential for a theory to be refutable. When we think of it, there is nothing about sheer formal logic or equations by themselves, in abstract space so to speak, which is refutable. Refutability is a mental quality and concerns the mental essence of a view of reality and in how we relate it to that which is beyond itself. An equation is basically an extreme simplification. No theory of physics or of any other science is merely a rule or merely an axiom or merely a set of axioms or set of rules or equation; the theory proper is mental and these things can come in to make certain elements of it more clear in some ways.

So, a formalisation can be considered an exemplification of some features of a view. This means that we can regard, for instance, Newton's equations as illustrations of some features of Newton's theory of reality. The theory proper is not the formal. The equations by themselves have no other reference than the entire context which may wrap them up with informal clarity; this clarity would be part of the theory.

Properly speaking, a theory is an item of philosophy, a dance of thought, thought which is humble to the greatness of reality or actuality, the ocean of nonthought or silence, which says: reality is always more than any theory of it. Reality is always more than this thought. It is always the 'more than', even more than any thought, even more than this very thought of 'more than'. As such, it is the infinite. A living and open infinity can be felt, sensed, perceived in a view which is recreated in each mind by a creative act.

The three physics programs are simple models of moving 3d which relate, abstractly, to a big deal of the thoughts presented in the physics chapters as to the likely structure of the universe as seen from the material angle of present-day modern physics, slightly re-interpreted to get general relativity and quantum physics on a common footing, and strongly extended so as to get nonlocality going in biological situations in terms of the third program formalism, which describes an experiment of a refutable kind: if this experiment does not come out as predict, 'the theory is dust and ashes', to quote Einstein. I am pretty sure that it will come out as predicted but if it doesn't, I will add a chapter to the effect! However, I leave that to people who love doing experimental physics; this is largely an intuitive initiative and somehow I know by heart it is coherent with a sense of the universe as intuitively experienced through the dance of synchronicities.

In supermodel theory, nonlocality plays a deep and strong role, much more so than in conventional quantum theory. It is at the heart of the theory, in that everything is seen as if 'woven' of nonlocality and locality is rather what needs to be 'explained'. When anything interacts with anything, nonlocality is involved. Every form of interaction involves a relationship to the frequency of the energy in some way; when some energy is supposed to 'read' another energy, this involves that there are changes involved so that precision is limited, as far as these energy types are concerned anyway (and we do not postulate other energy types here though in principle an infinity of other energy types are possible and imaginable and to my mind even likely).

The Heisenberg uncertainty postulates are of a nature which intrigues me, in a way which may proceed to suggest new forms of physics theorizing altogether. I wish to add to this description of supermodel theory that entirely new forms of supermodels may be contained within the vestiges of present supermodel theory as it interacts with these postulates, in a sense which I feel would come as a surprise (a pleasant surprise).

It may be argued that flexibility is, in isolation, not a refutable concept. But it is unrealistic to require of every portion of a theory that it is refutable in a trivial sense. I feel that the notion of flexibility, when applied in a careful way to any theory of the universe, assert a humility in thought which is fully and deeply compatible with the popperian approach of refutability.

What I will next suggest has occurred to me regularly and I am sure neither Bohr nor Einstein nor anyone else of the prominent physicists at the time would easily agree to what I say in this paragraph -- and yet I feel it is called for: many of the deep divisions and fragmentations of theoretical nature in physics arose in the late 1920s and in the 1930s and they were not solved in the 1940s when Einstein and Bohr etc were still alive. My postulate is that not only did the political tensions, and the tendencies towards getting into the atrocities of World War II, tend to distract these noble minds from being at their fullest potential, but it may also be that the fear of uncovering an even bigger bomb, by several orders of magnitude, than the (at that time, only imagined) atomic bomb, could have diminished their interest in actually developing physics further -- at least at a preconscious level.

Let us then not emphasize the technical or technological features of the supermodel theory, but rather consider it a work of art, and with the quality of refutability that can give it a flavour of science. I call on responsibility of an infinite degree in every individual focussing on theories in physics, so that we minimize the plausibility that new bombs of any kinds can be constructed as a result of our

pursuit of insights into reality. For the more we touch truth, the less we must bring the virus of natural exploitation or egohood into our work. If physics is gasoline, let us not ignite it. However, it would be fun to find a way to create leisure spacecrafts which have warp speeds and which are environmentally friendly, and life-supportive for humans. This is a peaceful vision of the kind of technology that may come from a good supermodel theory.

In the supermodel theory, there is one and but one principle, that of the movement towards wholeness (PMW). By 'principle' I do not mean that it should be considered as in any way 'above' the notion of the refutability of all our scientific theory. I merely mean that in this theory, it is the by far most essential point; but if the theory is tested honestly and strongly and nothing of what it predicts comes out as predicted, experimentally, then of course the principle along with everything else in the theory will be washed away (and if so, and only if so, I will guarantee a new edition of this book, in which the refutation is published, and perhaps I will work out a completely new theory).

What then of the so-called Heisenberg Uncertainty Principle? Since we indeed are encapsulating, in our theory, a picture of reality -- or a model which claims to have something to do with reality in ways which involves refutability, to be precise -- we must take a stand as to the Heisenberg and Bohr notion of complementarity between observables such as position and momentum.

It will be noticed that GRT proceeds without postulating any uncertainty or indeterminacy in position.

In trying to ascertain whether the complementary or mutual indeterminacy is merely epistemological or if it is also ontological (ie, having to do with reality, not just the experience of reality), physicists have explored whether some kind of fluctuation may be said to underlie phenomena, say, at the rims of what they imagine to be singularities in space-duration ('black holes with hairs', as Hawking quipped).

It seems that whenever physicists look consistently for such fluctuations, they tend to find them.

Can we then take it that the complementarity of position and momentum is nothing but a masking of fluctuating actually precise positions and precise momenta, a masking which physicists do not know any means of penetrating -- or is it to be taken in a more ontological sense? You follow?

Bohm postulated that an electron is a particle at all times and that the complementarity comes in when we try to ascertain what this position is. Bohr would have nothing of it, and postulated that there is some other state of affairs, and that position somehow comes into being as it is called for, such as in an experimental situations looking for position.

Logically, even though Bohr's position may be right, Bohm's cannot be excluded as untenable -- if then the position wildly fluctuates in a way which is not just local (as J S Bell has worked out with great precision in his clarification of the so-called proof by J S Neumann that hidden variable variations of quantum theory are not possible).

However, if Bohm's version is correct, or some other approach which gives a reality to position at all times, like the many worlds-interpretation, or like a modified nonlocal pilot wave version as of de Broglie, then it is not at all impossible that Bohr's position can be refuted and that, by some new technological means weaved of stuff not adhering too strictly to the limitations flowing from Planck's constant could look behind the mask of the complementarity and bring up more information that Heisenberg's uncertainty principle would allow. It is important to be open to these possibilities and not emotionally reject anyone on the basis of a tradition.

A computer game may illustrate the point. Imagine that we play a game called XYZ1 and each time we play XYZ1 a red ball is at a different and also hidden position in the game. It may be in this or that box, say, and on clicking on a box the box opens to reveal the red ball. So let's say that there are eight boxes, and some of them may contain blue balls and only one of them, if any, contains a red ball; or perhaps two red balls.

In playing the game, the person clicks on the box that she guesses might contain the ball.

Now, we might program this game in two ways. Either we can, at startup, call on some kind of RFFG (relatively free fluctuation generator) so as to actually position a ball or two (or none) in this or that box.

Or we can program it so that only when the person is clicking on boxes, we call on an RFFG so as to position, with some probability, a red ball there.

The former is a metaphor over Bohm's suggestion and the latter is a metaphor over Bohr's suggestion.

So these are two games, the M-game and the R-game, let's say.

Is the M-game or the R-game most representative of the actual case of the electron?

Many physicists, leaning towards a formalistic positivistic streak in physics, might suggest that it doesn't matter, it is philosophy not physics to ask that question, as long as our mathematical numerical predictions hold true in laboratories -- who cares what is where when we don't look?

However, there are subtle differences regarding refutability, the quality so foundational to physics it is more strong than any tradition, more strong than any academic institution or academic authority as a person, and so it is not just some vague kind of philosophy but a question of science to ask it.

If we say: who cares? Then we are taking a stand which is rather irrefutable. That is not scientific.

We should care, because in caring for the actual situation, we come with alternatives which lead to different kinds of experiments when we unfold and unravel the implications dutifully in the coming decades, giving duration and consciousness to our work.

For instance, one may postulate that there is actually no such thing as a given electron with a given position before it is measured, there is something else, some vague open kind of potential perhaps, and then this potential can lead to a series of postulates.

Or we can postulate that there are definite positions all along. Or something else, like the many world-interpretations or middle-things between these. Whatever we decide on, we should make it explicit but not only explicit but as testable as we can. Because science is sticking your head out.

I have been wondering about the reality behind the quantum positions since people first told me about it. I am still wondering. However, we are implementation a concrete theory and so I will make a concrete proposition about this, perchance by my 'intellectual intuition' of what is most elegant and what feels most coherent with innumerable aspects of reality as I have sensed them. Here it is:

If de Broglie or Bohm were right, then any spread of possible positions for something like an electron is a feature of an electron in addition to a position for an electron, and this spectrum of possible or likely positions is in nonlocal connection with the electron and affecting its movement.

In our theory, it would mean that the supermodel representing a spectrum of upcoming likely positions for an electron co-exists with a connection of the electron with one unambiguous position in each moment of the space-duration at all times.

If, in our supermodel theory, we were to take the R-game approach rather than the M-game approach, we would sometimes suspend the connection of an electron with a particular unambiguous region of a moment in space-duration.

Let me, before I suggest my own intuition, suggest that while I am not against the thought that there may be many worlds in our universe (or "many universes in parallel"), and that I am not against the thought of many open futures, I feel that there is a greater likelihood that something like a principle of movement towards

wholeness (PMW) goes on than a mechanical fragmentation of the universe into a zillion universes, one for each possibility, in each instant. For the latter is mechanical and the PMW suggests a more organic sense of the universe, and my personal intuition is that there is an organic wholeness to the synchronistic order of things. So the many-worlds interpretation appear to me to be a step back to mechanical reductionism as far as the unfoldment of processes go (even though it is wildly expansionist as concerns the amount of worlds).

Let me also point out that Louis de Broglie's idea of a pilot wave is somewhat closer to the mathematics (indeed, the simple mathematics) of early Schroedinger version of quantum phenomena, but that Bohm's notion of the quantum potential involves a somewhat more intricate mathematics.

However, the original pilot wave theory did not treat measurement situations as subtly as Bohm treated them; and so it did not come out correctly, numerically. It is a feature of Bohm's theory that measurements are considered 'mutual transformations' between some quantum systems and other quantum systems rather than an interaction between a quantum system and a classical mechanical system (as in Bohr's approach). If you take Bohm's idea of measurement to de Broglie's approach, it seems that it is a valid working possibility (thanks to George Simpson for comments on this; I have also read some of de Broglie's writings, once, late in his long life and then he described how he had left the Copenhagen Interpretation and dropped the approach of Niels Bohr again, and thus revised the theory he had as young and that he trusted it to be clearer and possibly more close to the truth than Bohr's approach.)

I fully support Louis de Broglie's theory updated on the measurement situation. That is my intuition.

Let me qualify, however, how far I would push de Broglie's pilot wave theory as far as the physics of the future goes:

If we have a picture of an electron in one position, and then, guided by the pilot wave, in a sudden different position then we have a discreteness and, by a finer duration resolution, could there not be an intermediate state in which an electron has neither positions? I would say, certainly, yes -- there is a whole range of theoretical possibilities that I sense one day can be absolutely critical for such things as stellar travel. However I will not venture in the present manuscript to do more than saying -- and then there may be a lot more! -- as to this issue. But let me grant this insight to Bohr that there may be a real role of the suspension of common observables; however it may have been somewhat misplaced to say that it concerns everything that happens in between measurements.

So I have given a somewhat qualified support to the M-game. Let me, however, point out that David Bohm himself was a creative genius with many positions in parallel, and while he at a talk at the Bohr institute in the 1990s said, according to newspapers, "The electron IS a particle", he did also imagine that both quantum and relativity phenomena are but expressions of a deeper implicate, finely woven flux which is beyond all concepts of particles. So also Bohm would say, sure, it might be that there is something like a cosmic moment in which an electron does not have a fixed position. This I can say also because, although I had read a great deal of Bohm's writings, I tended to ask him such questions as goes 'in between' the typical views of what Bohm's opinions were, and in doing so, I never once missed the point -- he always accepted such suggestions. He was a possibilist in the true sense of the word.

Let me now deduce the implications of this proposal. This proposal implies that the measurement situations, however much they lead to a sense of complementary indeterminacy or uncertainty, does not exactly show the reality of the case. Nor is it completely out of the question that this complementarity, at that level, can be circumvented if some special subtle matter could address things without getting so entangled into the matter it is measuring.

In doing away with the complementarity principle as applied to position and momentum, let me again give some credence to complementarity as a concept applied to physics -- for again I feel Bohr struck an important note in bringing it in. Indeed he seems to have got the idea while doing free walking in the mountains in Norway, while Heisenberg, young and restless at his Bohr institute, came up with the uncertainty principle equations; they met and sort of combined the two (this I have from some memoirs written by Heisenberg; however, it should be noted that Heisenberg and Bohr

were not at all at the same friendly terms after World War II.)

For I fully support the feeling that complementarity, in many senses, pervade all Nature. I see, in a way, the natural numbers beginning with 2 or two, more than 1 or one, because if you want to teach the concept of counting to a child, it really begins by showing the similarity between any pair of things and any other pair of things.

Likewise, we see a lot of mirroring, such as of positive and negative 'charges', as they are called: and this is again a complementarity.

There is also the feeling that life involves such complementarities as the masculine or reaching out and the feminine or attracting inwards.

Then again, we find the complementarity involved in proposing something and then seeking a refutation of it.

We have also the dialogue concept with the absolutely significant complementarity of I-Thou as proposed, poetically and as a stroke of genius, by Martin Buber. I am grateful to tons of discussions with my father Stein Braten on all issues of complementarity and also creative use of computer programming in relation to philosophy -- since early childhood!

So in all ways I can say, at a general level, by all means adopt the concept of complementarity and seek to find it, instead of erecting monopolistic, monolithic (or even fascistic) structures. Complementarity is about life.

In bringing complementarity into physics at a philosophical level, I think that Bohr has done the world a great service, as he also did in being the first who edged out a workable sketch of the atom.

The complementarity concept is in a complementary relation to the continuity concept. Bohr and Einstein thus had a complementarity philosophical perspective.

Let us now say that we can re-apply a generic complementarity to the electron: not anymore as much to position and momentum (except in ordinary measurements), but with regard to its localised energy and its spectrum of possible positions in the upcoming future, as represented by a supermodel.

For further discussion on possibilities and issues at a philosophical and also mathematical level I refer to David Bohm and Basil Hiley, "The Undivided Universe, an ontological interpretation of quantum theory", the last book Bohm ever worked on.

What of light? How come that light exhibits particle-like properties sometimes?

I find the situation of the so-called 'phonon' rich with suggestive evidence of what may go on in the case of the 'photon'.

In the 'phonon' situation, we create a wave of a sound-like character in a medium like a crystal, and we do so in a context where the whole situation is measured on an extremely fine basis, in which de Broglie's relation of energy being related to the frequency times Planck's constant is related to so that we get an energy of the sound waves which is close to the individual quanta. For quantum mechanics is a theory of all energy, to start with, anyway.

We create sound waves, waves that are waves, waves which have a definite and known medium in the sense that anything can be a known medium for a wave. So the situation is clear-cut: there is a wave. There is a wave and there is no reason to assume that this wave is carried out by means of some mysterious particles of sound which have temporary positions or no positions or a spectrum of positions and yet -- interestingly -- if we measure the arriving energy with a focus on position, then Voila!, we get particle-like eruptions of energies with adherence to the idea that no quantum of energy should be divided, just as for light, for electrons etc.

For it is a postulate in QMT that energy arrives, if at all, as whole packets of energy no less than that given by de Broglie's relation.

If we had known this when we had formulated the measurement ways of energies we might

have defined a kind of energy size so that Planck's constant in effect would have been one. For quantum theory suggests that there is a basic, indivisible 'coin' of energy.

When we meet continuous phenomena such as of light at a human scale then a physicist might suggest that this is an appearance, and that if we look a lot more closely, aided by adequate technology, we will see that it is not continuous but grained, and de Broglie's relation gives us the size of the grainage.

The amazing thing is that the PWs, or the pilot waves, which in our theory are supermodels of a special kind operating on any other supermodels, seem to organize the sound energy so that it arrives in packets even though it is definitely a wave phenomenon, in all its appearances.

A pilot wave (PW) supermodel can then organize any kind of energy not just particle energy and when it is brought into a situation where position is measured the PW supermodels create something of the effect of a particle.

This is roughly how I suggest we explain photons (although their media is more complex, involving a two-dimensionality in each node, among other things).

What the supermodel theory then contains is a postulate that light is a wave-like energy which is guided by PW supermodels just like any other kind of energy. It is however not just any kind of energy but an energy arising by a certain kind of connectedness involving the magnetic and the electric aspects of the supergrid or supermodel called SPACE_DURATION.

The electric and the magnetic aspect is in a way yet another example of complementarity, which is found so often in nature. The magnetic rather folds on itself and the electric rather spreads out and they have relations akin to a two-dimensionality, a two-dimensionality also found in the PW supermodels; they are consistently wrought up with the complex number factor i when put in the Schroedinger equations. (Indeed, the Schroedinger equation is very near to the wave equation for classical guitar strings and the like, but with an additional component which comes from adding i and h , or the complex number dimension and Planck's constant).

Let us also note that the mysterious 'shells of the electron' in the bohrian view of the atom prior to quantum mechanics got with de Broglie a beautiful explanation which led to a lot of good physics, and still does: namely that the pilot waves form a sort of standing waves around the atomic core and the rules of standing waves being what they are -- that they need to be a whole number of half-wavelengths or else the standing waves interfere destructively with one another -- leads to the quantum 'jumps' between possible energy states of the electron around the core. Add to this the two-dimensionality of the PW supermodels and the standing waves are of course a lot more complex than mere guitar string waves but it is fundamentally much of the same picture; and it is indeed a picture.

Let me point out that Bohr suggested that the imaginary number i involves, when it is used in physics, a phenomenon which should not be considered really existing but merely a mathematical abstraction. I think that this statement, if made precise in a rather obvious way, is wrong.

If this statement is made precise in this way -- that an equation which involves the imaginary number i cannot possibly depict anything really existing -- then we see that it is unlikely to be correct, because the imaginary number i is merely a vehicle for bringing an additional dimension to the numbers we invoke, so that they can rotate and not just fluctuate up and down. So, for instance, we could bring in the imaginary number i so as to account for all the different clock-movements on the clocks of people's arm while in no way implying that these clocks are merely mathematical abstractions not really existing out there. The imaginary number i is no more imaginary than any other element of mathematics, for all of mathematics is imaginary anyway.

I feel it is unfair to criticize any physicist too much but we should know that the influence on physics in the twentieth century by Niels Bohr is tremendous and vast, it involves a similar influence that Freud exerted on the science of mind -- and so we sometimes should lift into attention elements of what such an influence said in order to distill it or negate portions of it when it is important. Or else it can reside there, in our preconsciousness, as something which create unnecessary

friction.

So let us not be misled by the phrase 'complex number' either. It is not all that complex, in fact it is one of the simpler and more beautiful structures in mathematics. However if I were to make that bit of mathematics all over again I would have called it something like 'rotation numbers'.

When we say 'rotation number' we at once see why the number pi (3.14...etc) comes up again and again in the quantum equations also involving 'i' and 'h' (Planck's constant).

So just as space-duration has a two-dimensional complementary feature in the electric and the magnetic so can any PW supermodel have the two dimensions involving the pilot wave, or rotational, numbers.

Then I wish to address the question of whether all energies are fundamentally of just one (complementary) type, and to this I sense a simplicity which is also in full coherence with Einsteins work on the 'equality' of mass and energy (through the factor of the square of c), and I say, intuitively, yes.

If, then, as it appears, that the simplest and purest kind of energy there is, is the weaving of electric and magnetic waves together as Maxwell beautifully described -- however in some sense which must be supplied with quantum insights, ie, the PW supermodels (in our case) -- then to some extent we seem to be suggesting that everything is 'woven of light'.

In the quest for simplicity and also for having a coherent picture of reality in this supermodel theory, let me proceed further along this line. I will now state some more intuitions which can be each considered eclectically but which also works together as a symphony in the present modelling of reality.

Many physicists have asked: if the pilot waves, or probability wave function, have a reality then why is it not measured directly?

At the same time, they have acknowledged that the gravitation waves, or waves of curvature, are in general so weak compared to what is called 'the other forces' that they can hardly be measured at all with their equipment.

I propose that the PW supermodels manifest themselves through extremely weak gravitation waves, picked up by each relevant component, such as an electron, by means of an extraordinarily subtle form of resonance.

In alignment with what Bohm has proposed, I suggest that when an electron is seen to move in accordance with something like a pilot wave, it moves on its own accord rather like a ship moving on its own accord on the basis of what it has picked up on the radar.

Also in alignment with what Bohm has proposed, and for which there exists, I have heard, some vague empirical justifications, I suggest that the electron has structure.

This structure, moreover, is highly complex. If it is 'woven of light', as in the present suggestion, and the discreteness of space-duration is directly involved in the structure of light, then there is plenty of scale distance between light as such and the electron.

My intuition urges me to say more, however. My feeling is that we can make a picture of an electron in which it itself creates, as it were, its own curvature to propell it in a certain direction.

The same can be said for protons, neutrons etc. That they pick up extremely weak waves of curvature so as to lead them to project a curvature. When different waves of curvature intersect so as to be in resonance with the particles this may result in the flexibility feature, which we spoke of in an earlier chapter as distinguishing supermodels from any kind of programmatic text. (Let us keep this in mind while we make a concrete computer model; supermodels are more advanced structures than program texts.)

A question is, what is it that makes an electron into an electron -- ie, how can we explain its particular mass, charge etc? And the same for neutrons etc.

My proposal is that all these particles has surfaced by means of what Rupert Sheldrake once called 'habits of cosmos'; or, as we may say, there are similarities and contrasts involved, perpetuating themselves by means of the PMW (the principle of movement towards wholeness). They may have come about themselves by means of some flexibility or some fluctuation; we cannot rule out, however, that there are subtle origins for this (as well, or as an alternative, in combination with some relative degree of fluctuation -- or indeed, by some other principle, like similarity with an already existing whole of the universe, etc etc).

In any case, since light involves the magnetic and the electric, it involves the sensitivity to PW supermodels, it involves the relationship within the space-duration of curvature etc, and it is also microscopic enough, as compared to neutrons, protons etc, to be a possible vehicle for the structuring of all these 'known' material components, then it can make sense to say that light weaves it all.

I propose, for the sake of simplicity, that there is but one medium, for both curvature in GRT, electromagnetism in QMT, and wave functions understood as pilot waves, and this medium is such that at each node in this flexible four-dimensional matrix, there is a two-dimensionality of curvature, a two-dimensionality of frequency, and a directedness (as momentum, very roughly) of any such energy as indicated by the frequency. The two-dimensionality of frequency is the electric and the magnetic, the two-dimensionality of curvature reflects any neighbouring energy (as well as this) with large-sized numbers; tiny numbers (relatively) speaking reflects information from pilot waves as to changes of direction. The directedness will feed the pilot waves and they will feed back. The pilot waves are created by the PMW, the principle of a tendency of movement towards wholeness, operating not just on 3d but flexibly over 4d (yoga4d.;). Each pilot wave is a supermodel, having behaviour and flexibility, representing an enhancement of contrast and or similarities as to other supermodels with which it interconnects. SPACE_DURATION is a huge and particularly stable and well-structured supermodel; they all have the two-dimensionality in each node and potentially can act to transfer energy. In an extended version, they can do the warp-like tunnelling of one portion of SPACE_DURATION to somewhere else.

In this supermodel theory, we find that this 'atoms' of actuality, the supermodels, are mind-like structures relating to themselves and each other in a conversational like, making up a many-dimensional universe which gradually unfolds, with an open future. The pilot waves are supermodels fostered, sustained and dissolved according to PMW. This is the most succinct summing up of the theory, which is however in nature informal. It is expressed as to only some of its many features in the formal language which is based closely on Forth by Charles Moore in interaction with the XML/3d as in my version of it; see references for the compiler in the Green Cat /home/winner directory, where full open sources are kept. I regard the theory as consciously vague and open as to the depths of uncertainty relations. I do not mean to say that all features of uncertainty nor of curvature are illustrated in the computer languages. The empirical novel predictions of the applications of PMW to EPR-like situations must pertain to a more complex situation than the one illustrated. The empirical refutable predictions are not here presented in a numerical format, but in the format of a clear idea which can be translated by active physicists to exact numbers.

For clarity, I will state the third EPR-like situation, which is indicated in but a few features in the formal model below: here, we start with an initial condition without local contact with a number of particles, not just two, and instead of local entrainment we build up a unique pattern of activation in this set of particles, say ten or ten thousand, by some kind of entrainment chamber inserting a fingerprint frequency or something of that nature which has a near-perfect set of similarities and contrasts involved, in a number of macroscopically spatially separate laboratories with atomically exact clocks. We want to set up a nonlocality without local contact; we want to check that it is not succumbing to speed of light limitations; we want to create it through a postulated PMW which might presumably touch all the universe, and so we must try and try again looking for a rather unique pattern (perhaps DNA). With the rather unique pattern, we will after a while let mostly all particles involved be exposed to agentle change, akin to the measurement situation in the EPR-like situation. This change will be instantly followed up ('instantly' in the Aspect sense, at least much faster than the speed of light) by a

measurement on the not-changed particles. We are looking for a pattern of correlation of similar contrasts and contrasting similarities on the particles that we did not change ourselves. If we find it, it is in tune with what I regard as a trivial yet biologically and spiritually interesting implication of supermodel theory. If we don't find it, supermodel theory belongs to the museum of misguided proposals.

So, the third EPR-like situation as described in a Forth-like language which modifies the XML/3d-model is a lot more complex than in that two-particle version, but we can sense the simplicity of the PMW since it in fact was used in how supermodel theory accounts for the more classical EPR-like situation (with local contact first, see supermodel1.txt and supermodel1.xml).

Supermodel theory incorporates curvature essentially, not just through an artificial type of 'graviton'-related forces; this is shown in supermodel2.txt and supermodel2.xml, in which the EPR-like situation unfolds in the presence of some very strong curvature like a singularity in SPACE_DURATION (a so-called 'black hole'). We see that this comes in as effortlessly as it could come, and that shows that we have a rather coherent proposal in supermodel theory, in which we can let go of certain dogmas pertaining to the original forms of GRT and QMT and focus on the positive empirical content as reflected in a fresh new perceptive way in which the priority is to the mind-like correlation fields or supermodels, which we can subtly and sensitively feel to be at the ground for synchronicities. For these do not merely concern elementary particles, but also, due to the the similarity and contrast enhancement also constellations of such; however their pilot wave communication requires extraordinary microscopic sensitivity which is amplified and this amplification is perhaps more than metaphorical what meditation is about.

We also have, as Richard Feynman, for instance, describes in his QED -- Quantum Electrodynamics -- a whole range of simple, interesting ways of explaining things by means of the notion of the easy, spontaneous, interconvertibility between light and matter particles; add to this also the sense in which things can flow both ways in a space-duration (which is no contradiction, in contrast to the conventional situation of speaking of 'both ways in time').

While Feynman may have considered some parts of physics 'mere mathematical abstraction' we do not need to go as far as he did at all points.

What about the postulate of 'conservation of energy'? How can it hold if indeed the electron and other particles sort of make their own walks?

However it must be clear that the notion of 'conservation of energy' is, as also Bohm has pointed out, a statistical concept which does not hold, necessarily, for individual quantum measurements. Indeed, on giving energy to an electron emitter of the size of an electron we may or may not get an electron, or maybe even more than one, as coming out and being measured. So there is a tendency rather than a law that energy is conserved at this level.

I feel that the word 'energy' is woven up with a lot of prejudices in physics and that another concept might make the essential situation a lot clearer.

For if we rather equate mass with energy and speak of a new measurement standard of energy so that Planck's constant is effectively equal to one, then what we might seem to have is position and tendencies for position as curvature, as well as supermodels influencing these curvatures.

It is not necessary to speak either of mass or energy because we can speak of curvature; and the curvature is indeed a tendency for a direction, a tendency, rather, for a new position.

In this picture, the complementarity which before was called 'position - momentum' can rather be called 'position - tendency'.

We see that we are achieving, slowly, by assembling the fragmented pieces of a great deal of high-level physics work for more than a century, a greater and greater frame of simplicity and also wholeness -- not a reductive simplicity, but a simplicity that can dance with the actual complexity there is.

If we would like to focus on tendencies for position, ie, range of positions, we can get something like a wave of this range, a wave which admits of a frequency; in

contrast, if we wish to focus on position, we need to add waves (as Nick Herbert elegantly describes in his book "Quantum Reality") so as to create a 'peak' at a single position. In that way, the PW supermodel for position has a natural complementary to that of tendency. I admit it is somewhat unclear or vague as formulated on this stage, but as we evolve the formal model slowly, not being eager for definitions before we have created a foundation in shared insight into the matter stuff, we will probably get to the light, together.

Rather in spinozistic (or pantheistic) terms, we can see each structure such as an electron, proton or neutron, or whatever, as independently 'moving about', out of its own inner order; this inner order involves in part a sensitivity which all light already has, by virtue of it being a curvature with a PW supermodel, and in part a capacity for some other of its light to 'shoot out' and create a curvature which pulls the present correlation in a particular direction, as guided by the PW supermodels to which it is in resonance.

Let us speak of this again: is a curvature moving a curvature? Let us go to the einsteinian picture again, where it is spoken consistently of correlations in a space-duration. So there is really not so much pulling and pushing as mere curvature which indicates a world-line and moments being manifests somehow flows through this world-line creating the appearance of a particle in movement.

This world-line further appears to be fluctuating if we pursue the pilot wave idea; for instance, in a double slit experiment the pilot wave idea is that the particle, in the case where it is indeed a particle like an electron involved, goes indeed through one not both slits however the pilot wave refers nonlocally to both slits in its guidance of the motion of the particle.

Empirically, some waves seems to spread out circularly or in all available directions, whereas other waves seems to project like rays. If light is a wave of the latter kind, however guided by PW supermodels, it will then move as a ray to some extent, then possibly shift direction, etc -- and the Feynmann mathematics gives indications that this way of thinking can be numerically consistent with the quantum theory predictions.

Yet how can a curvature project a curvature, as suggested just above? Let us call into mind that if light is a 'basic' curvature, involving also a basic nonlocal type of connection between one discrete point in the space-duration and another, then this is extremely small compared to something like an electron, and the curvature of the electron involves a lot, lot more. In 'constructing' an electron with its summarized big curvature out of the many many tiny curvatures, each having capacities such as the electric and the magnetic, capacities such as polarisation and the typical light-type of resonance, we can indeed have the erection of a full-blown structure which in, effect, can do a lot -- including use something of its own curvature to create another curvature and then take it, or a lot of it, back again.

Again, I wish to emphasize: a theory is per definition informal. A formal theory is an absurd, self-contradictory thought. The formal cannot be but an illustration.

We will have three examples, the EPR-like situation, illustrated in manhattan as a program, the EPR-like situation effortlessly expanded with curvature, to show that the formalism and also the theory are willing to incorporate this type of general relativity theory structure on an equal footing with quantum theory structures, and as a third illustration, we will engage refutability by changing the EPR-like situation in alignment with the approach of the theory as perception and we will give a new testable experiment in a very general form, that those who engage in quantum experiments can refine into a number of concrete experiments with (hopefully) today's technology. If the predictions do not meet the actual results, please scrap the theory of supermodels. That is the reality of refutability.

To retrace some of our steps, a theory is a subtle, tacit and in some sense nonfinite mental structure with, in good cases, plenty of areas of reference to the world in a refutable sense. As such a theory cannot be 'formalized' but selected components of it can be, I prefer to say, illustrated formally.

This can be said of theories in any domain as well as of this theory of essential processes in the manifest universe. By 'essential processes' I mean that the focus is not on concrete or specific processes, such as stones or plants. By 'manifest' I mean, that which is more or less at hand, excluding not the (likely) possibility that

there is infinitely more to be said about more subtle and less manifest levels, and even infinitely many more aspects of this manifest level. I see no a priori reason why there may not be many more forms of forces, energies and matter, or other types of processes, in the manifest universe as we know it.

What I have done is to generalize over the physics of the twentieth century so as to address issues left rather unsolved by Einstein, de Broglie, Bohm and Bohr, etc, in a way which makes sense in relation to a world full of macroscopic nonlocality or synchronicity, which is indeed the world as I directly experience it every day. The modified version of the EPR with different initial conditions illustrate the perceptive mechanism of the universe (the word 'mechanism' is meant in a rather metaphorical and open manner, referring more precisely to something infinite and beyond determination, in this case) which is so that nonlocalities can be expected to be rather everywhere, not just somewhere; and given suitable sensitive conditions, they can be picked up also at a biological level.

By 'universe' (in the above formulation) I mean to indicate a sense of wholeness (rather as in Bohm's phrase 'the undivided universe' in the title of his last book, with Hiley). I do not mean to exclude the possibility of many parallel worlds and so on but to emphasize the wholeness of 'what is', ie, existence as we know it, more or less.

The theory of supermodels as I propose it is not reductive for it does not say, 'there is nothing but this', but rather it says: this is at least what is.

In the first illustration of a formal nature I assume, with Einstein-Podolsky-Rosen, that some kind of meeting between two particles have occurred, following a gentle separation of two particles in a way which leaves an 'indistinguishability of the wave function' intact; after which some kind of measurement or other is performed on one and maybe also the other particle.

The entire discussion around EPR is a great deal more complex and subtle and involves a challenge by Bohr even to the very act of describing the unmeasured 'system' as being composed of 'two particles'. However, I do not attempt here to illustrate the classical EPR but an EPR-like situation. Moreover, the EPR-like situation is understood according to the supermodel theory not the Copenhagen Interpretation. Because of the (neo)realist orientation of supermodel theory we can visualize position of particles in each step, and consider measurement rather as a particular nonlocal interaction between particles and a set of particles constituting apparatus.

We abstract out a few elements of this situation. Due to the flexibility of the supermodels, we will see fluctuations or dances, derived from, in our formal illustration, the RF function.

Due to the existence of a common 'wave function' or Pilot Wave (PW) as we like to say in supermodel theory, a portion of the fluctuations for particle A will relate perhaps symmetrically to a portion of those of particle B.

To see the PW in action, we should introduce a change for one of the particles which can be metaphorical of the change which a measurement introduces. Since, in supermodel theory, we are at liberty to model each moment of unfoldment visually, we do not need to actually do much out of the modelling of measurement apparatus. We must, however, not commit the error of early de Broglie of regarding a measurement as an event not in itself requiring pilot waves (ie, a 'classical physics' or 'mechanical' measurement situation must not be assumed). Otherwise, the arguments of von Neuman would apply.

So any measurement action is wrought with uncertainties given by HUR, the Heisenberg Uncertainty Relation (at least insofar as we are dealing with Planck-governed matter and energy; and in twentieth century main physics there is no empirical indication of any other type of matter and energy; however it is theoretically of course infinitely many ways in which HUR might empirically be upset in the future and so such a qualification -- specifying which types of matter and energy for which HUR applies -- may one day be essential to physicists...).

Only by keeping this mind will the complexity of Bell's inequality be seen to be necessary, as seen from the viewpoint of an experimentative situation with the type of physical equipment which today's physicists have at their disposal and which Aspect used.

Keeping this complexity of measurement in mind, we can nevertheless simplify what we here formally illustrate, once we, as modellers through the supermodel theory, have extra information of variables which to the poor experimenting physicist is hidden. If these hidden variables were local, or without a nonlocal PW, then von Neuman's argument would apply. So to stay tuned to the actual theoretical numerical predictions of both Copenhagen Interpretations and bohmian interpretation of quantum theory, as regards EPR, we will be interested in seeing how a measurement-like 'change' in relation to, say, particle A, create only a portionally symmetric behaviour in particle B at the same time. (Let me add here that 'at the same time' is a meaningful phrase in supermodel theory because the whole unfoldment of the four-dimensional SPACE_DURATION does have simultaniety, in contrast to the limitations proposed in general relativity theory; and see the discussions above for how we achieved this -- by a laxing on the notion of time with regard to the fourth dimension, saying instead it involves 'duration', in short. Nevertheless, it is speculation to say that it is exactly 'the same time'; there is of course infinitely many possibilities between the apparent factual situation -- that it supercedes the speed of light -- and that it is indeed instantaneous. My intuition is that it is not quite instantaneous; however supermodel theory refrains from saying anything about it, hnf -- hypothesis non fingo.)

The other portion is due to flexibility. And we must regard our view as privileged and not confused the read-outs of our view with the measurements portrayed to the empirical physical investigator, with the filter of HUR involved etc.

Let me just point out before we begin to look at the concrete formal illustrations that people who are not warmed up to the nonlocality sometimes begin by seeing HUR only as a filter. But the reality is that HUR is, since measurement is a nonlocal transaction too, both a question of nonlocality and of being a filter. In getting nonconfused about this, ie, in having a dialogue of mind and of issues and questions of matter elaboration so as to elucidate this clearly within ourselves as a free play of thought and insight, we come to regard physics as a token of enlightenment and not primarily a tool for industrial development.

When we repeat the illustration, we should expect flexibility to dictate different results each time. However, if our change is introduced, we should be able to discern that there is some degree of symmetry in the immediate change of both particles in the measurement-like moment. Bell's inequality theorem is about making a numerical exact prediction of a statistical nature, in terms of a curve, implying empirical evidence of nonlocality as a feature of nature as something intrinsically transcending the speed of light, what Einstein, with some discomfort, referred to as a 'ghostly action-at-a-distance'. It is my guess that, while Einstein did not challenge the numerical predictions of quantum theory when he partook in proposing the EPR thought experiment, he would have been somewhat surprised by Bell's inequality, which came thirty years later, but which theoretically could have come the week after (since it built on nothing except close analysis of the matter at hand, with no significant reference to empirical discoveries, though with a motivation at a feeling level from David Bohm's two articles in 1951 on a hidden variable or 'causal' interpretation of quantum theory).

Let me further guess that when Bell's analysis had been digested by Einstein, he would have guessed that an experiment of the kind Aspect did (of an empirical nature, done some fifteen years later than Bell's analysis, on exactly this field and with this focus), would come out to the confirmation of quantum theory. In other words, I do not think Einstein would have been stubborn in trying to disawow the predictions in quantum theory once they had been brought out to that level of precision. But once he had accepted it, he would have had to forgo his earlier conclusion that the speed of light is conceptually of such absolute significance; and knowing of Einstein's creativity, he would have engaged in a radical rethinking of the whole schema, and I think by and large he would have come up with supermodel theory. Supermodel theory, it should be noted, gives a lot more credence to general relativity theory, in that it treats gravitation through curvature and so on, than several other attempts to incorporate gravitations on a quantum physical scheme.

With regard to Bell's analysis, our illustration (of a formal nature) is to give a sense of the possible underlying reality of the case. In the first and second illustration, the existing type of predictions can be seen to be reproduced (I say 'type', because the illustration is too devoid of details to go anywhere near the complexity level required in the conventional EPR-experiments; but it is quite clear

that it has adequate complexity to give a sense of all the essential conceptual implications involved). In the third illustration, the issue at hand is in the area of untested (and hence refutable) predictions.

The formal illustrations will now be given with a minimum of further ado and that completes the physics here. It is effortless to start up the three programs on the Green Cat I have made for you on the CDRoms, as a reprogramming and extension of portions of GNU/Linux Red Hat 8.0, with the program names supermodel1, supermodel2 and supermodel3. You will get a view of each moment which you can rotate, move or scale by simple mouse-clicks or motions, in 3d; and then you can click NEXT MOMENT in order to see how things develop. You will see that there is to some extent a real and changable future to the present manifest moment of each process (as seen for one observer), and you can take this as a simple illustration of an infinitely more complex reality along the lines indicated in this book. Again, I do not wish to say that the formalisation is a formalisation of the theory, but only of some extracted elements of the theory. Please keep this in mind, because the theory of supermodels is as such far greater than any formalisation and only in that way can it be humble to your own perception, moment by moment, of a living actuality. With Green Cat, you can make more formalisations so as to explore these, for instance.

Here follows, pairwise, the six files supermodel1.xml, supermodel1.txt, supermodel2.xml, supermodel2.txt, supermodel3.xml and finally supermodel3.txt. The third pair, supermodel3, exemplify refutability: the initial conditions of the EPR-like situations is not anymore local contact, but rather a similarity/contrast responding to the Principle of Movement towards Wholeness. Here, we give only some very simple indications; in practise, we must of course regard a lot more particles at the same time with a much more intricate contrast/similarity pattern (so as to create uniqueness in a world of diversity); and the step from finding confirmations on this to understanding macroscopic nonlocality in living young tissue is of course quite big. One of the things which become easy, though, is that the nonlocality no longer requires extraordinary conditions to be considered a likely possibility; although it may be extraordinarily difficult to spot it at first. Once it is grasped that biological tissue involves patterns repeated over and over in ways which are unique to each organism, and partially unique to each species, and this is seen in the light of a Principle of Movement towards Wholeness, or PMW, one will see that nonlocality may be part of the biological finesse in sensitive situations. These sensitive situations involve a low-noise situation where there is a great deal of contact between scales of energy, so that there are series of 'amplifiers' (twoways) between the scales: the macroscopic level must be sensitivity to the microscopic levels and vice versa. Through the PMW, we can see that this can be part of the meditative biology of an individual -- this I submit in a refutable sense. Furthermore, since the nonlocality due to the GRT and QMT is naturally four-dimensional, not just three-dimensional, the dimension of D for Duration is involved, and a sense of feedback from possible futures can be regarded as emitted to the sensitive individual when the brain and body state is apt for it.

So, though this part of the supermodel theory involves a lot of steps which I have but sketched here, the essential ingredient is that when we find a more general condition of nonlocality than in the conventional QMT, this generality can lend itself for explorations in all avenues of life. In this sense, the sparks from physics go far, even into art. Beyond the question of science, we can intend to bring even economy forth in an organically nonmechanical way as suggested by an open theory of supermodels or something like that. This infinite expression of consequences, as paintings, as dance, as poems, must go beyond any particular thought of reality, any particular theory... but in going beyond, it is always good to know that we have also had the opportunity of thinking through some empirics rationally in a way which is compatible with a nongullible nondogmatic nonviolent open religiosity or spirituality, which must be the foundation for health at all levels and in all ways forever. Big words, but deep work can give such words the right strength of informal open meaning.

```
<?xml version="1.0" encoding="UTF-8" ?>
<geom>
  <geom-off vertices="4" faces="2" node="supermodel1">
    <vertices>
      <vertex index="0" x="3100000" y="7100000" z="8100000"/>
      <vertex index="1" x="3200000" y="7200000" z="8200000"/>
    </vertices>
  </geom-off>
</geom>
```

```

    <vertex index="2" x="3300000" y="7300000" z="8300000"/>
    <vertex index="3" x="3400000" y="7400000" z="8400000"/>
</vertices>
<faces>
  <face>
    <vertices>0 1</vertices>
    <color r="1" g="0" b="0"/>
  </face>
  <face>
    <vertices>2 3</vertices>
    <color r="0" g="0" b="1"/>
  </face>
</faces>
</geom-off>
<geom-annotation on="supermodel1" x="2000000" y="2000000" z="2000000" r="1" g="1"
b="0">
  <note>Two particles acquire nonlocality due to local contact</note>
</geom-annotation>
</geom>

```

(supermodel1.txt)

```

: supermodel_manifest_moment
( in: movement number / )
this_moment !      this_moment @

dup 1 = if
  initialize_std_size_space_duration

  3100000 7100000 8100000
  std_minimum_activation_frequency
  5 already_mapped_in_xml_at_this_line

  3200000 7200000 8200000
  std_minimum_activation_frequency
  6 already_mapped_in_xml_at_this_line

  3300000 7300000 8300000
  std_minimum_activation_frequency
  7 already_mapped_in_xml_at_this_line

  3400000 7400000 8400000
  std_minimum_activation_frequency
  8 already_mapped_in_xml_at_this_line

  speedy_direction_right
    5 activation_at_this_line

  speedy_direction_right
    6 activation_at_this_line

  speedy_direction_left
    7 activation_at_this_line

  speedy_direction_left
    8 activation_at_this_line

  stir_natural_fluctuations

  perpetuate_this_moment_into_open_future

  5 6 7 8
  assert_local_contact_between_two_pairs

  activate_PMW

```

```

else dup 1 > over 4 < and over 4 > or
if
  get_feedback_from_PMW
  stir_natural_fluctuations
  act_out_results_of_feedback_from_PMW_etc
  perpetuate_this_moment_into_open_future
  do_more_PMW
  convert_this_moment_to_XML_and_usher_it_to_rendering
else dup 4 = if
  make_measurement_like_influence
  7 8 activation_at_these_two_lines
  stir_natural_fluctuations
  act_out_results_of_feedback_from_PMW_etc
  perpetuate_this_moment_into_open_future
  do_more_PMW
  convert_this_moment_to_XML_and_usher_it_to_rendering
then then then
  drop ;

```

```

<?xml version="1.0" encoding="UTF-8" ?>
<geom>
  <geom-off vertices="4" faces="2" node="supermodel2">
    <vertices>
      <vertex index="0" x="3100000" y="7100000" z="8100000"/>
      <vertex index="1" x="3200000" y="7200000" z="8200000"/>
      <vertex index="2" x="3300000" y="7300000" z="8300000"/>
      <vertex index="3" x="3400000" y="7400000" z="8400000"/>
    </vertices>
    <faces>
      <face>
        <vertices>0 1</vertices>
        <color r="1" g="0" b="0"/>
      </face>
    </faces>
  </geom-off>
</geom>

```

```

    <face>
      <vertices>2 3</vertices>
      <color r="0" g="0" b="1"/>
    </face>
  </faces>
</geom-off>
<geom-annotation on="supermodel2" x="2000000" y="2000000" z="2000000" r="1" g="1"
b="0">
  <note>An EPR-like situation with curvature, effortlessly implemented</note>
</geom-annotation>
</geom>

```

(supermodel2.txt also by s.v.r.)

```

: supermodel_manifest_moment
( in: movement number / )
this_moment !      this_moment @

dup 1 = if
  initialize_std_size_space_duration

  3100000 7100000 8100000
  std_minimum_activation_frequency
  5 already_mapped_in_xml_at_this_line

  3200000 7200000 8200000
  std_minimum_activation_frequency
  6 already_mapped_in_xml_at_this_line

  3300000 7300000 8300000
  std_minimum_activation_frequency
  7 already_mapped_in_xml_at_this_line

  3400000 7400000 8400000
  std_minimum_activation_frequency
  8 already_mapped_in_xml_at_this_line

  speedy_direction_right
  5 activation_at_this_line

  speedy_direction_right
  6 activation_at_this_line

  speedy_direction_left
  7 activation_at_this_line

  speedy_direction_left
  8 activation_at_this_line

  stir_natural_fluctuations

  perpetuate_this_moment_into_open_future

  5 6 7 8
  assert_local_contact_between_two_pairs

  activate_PMW

  4200000 6200000 7200000
  assert_std_singularity_curvature_centered_here

else dup 1 > over 4 < and over 4 > or
if
  get_feedback_from_PMW

```

```

    stir_natural_fluctuations
    act_out_results_of_feedback_from_PMW_etc
    perpetuate_this_moment_into_open_future
    do_more_PMW

    convert_this_moment_to_XML_and_usher_it_to_rendering
else dup 4 = if
    make_measurement_like_influence
      7 8 activation_at_these_two_lines

    stir_natural_fluctuations
    act_out_results_of_feedback_from_PMW_etc
    perpetuate_this_moment_into_open_future
    do_more_PMW

    convert_this_moment_to_XML_and_usher_it_to_rendering
then then then
  drop ;

```

```

<?xml version="1.0" encoding="UTF-8" ?>
<geom>
  <geom-off vertices="4" faces="2" node="supermodel3">
    <vertices>
      <vertex index="0" x="3000000" y="8000000" z="9000000"/>
      <vertex index="1" x="3200000" y="8200000" z="9200000"/>
      <vertex index="2" x="4000000" y="6000000" z="7000000"/>
      <vertex index="3" x="4200000" y="6200000" z="7200000"/>
    </vertices>
    <faces>
      <face>
        <face>
          <vertices>0 1</vertices>
          <color r="1" g="0" b="0"/>
        </face>
      </face>
    </faces>
  </geom-off>
</geom>

```

```

        <vertices>2 3</vertices>
        <color r="0" g="0" b="1"/>
    </face>
</faces>
</geom-off>
<geom-annotation on="supermodel3" x="2000000" y="2000000" z="2000000" r="1" g="1"
b="0">
    <note>Two particles acquire nonlocality due to similar contrasts</note>
</geom-annotation>
</geom>

```

(supermodel3.txt by stein von reusch)

(this manhattan forth creates 3d simulation in green cat)
 (in a rather self-explanatory fashion given the physics chapter)
 (in the book, which also lists this source)
 (my forth definitions for manhattan are included with full source on CDs)
 (which relate Charles Moore's Forth to XML/3d by Daeron Meyer)
 (in the novel work done for this book, PASSION)

(a commentary in Forth is a parenthesis on a line like this)
 (Forth is explained in many free and open texts)
 (and in the excellent book Starting Forth by Leo Brodie)

(program structure for supermodel3:)
 (initialize the)
 (supermodel called SPACE_DURATION)
 (set it up with similar energy)
 (frequency for two particles moving)
 (in opposing directions)
 (the first xml has these two particles)
 (and nothing else)
 (links from SPACE_DURATION to)
 (xml are established with regard)
 (to its changeable structures)

(program info on supermodel2.txt)
 (if everything is made of)
 (photon-like excitations,)
 (and each of these proceeds)
 (in a standard speed)
 (-- with fluctuating or circular)
 (direction changes to give an)
 (appearance of slowness)
 (it follows that if the area)
 (though which they proceed on is)
 (stretched, the internal processes)
 (will slow down -- the curvature)
 (is such stretching)

(in the formalism,)
 (the standard movement)
 (speed, or C, is set)
 (to be five nodes)
 (pr moment)
 (this is)
 (not an ontological proposal)
 (ie, it could be fifty)

(if phenomena of nonlocality)
 (can in general be seen)
 (to be emergent out of a)
 (principle of movement toward wholeness)
 (which has boundless contrast and)

(similarity detection features, then by)
(virtue of this boundlessness, in SPACE_DURATION,)
(nonlocality would be expected to be pervasive;)
(and in situations of sensitivity of)
(macroscopic processes to finer and finer levels,)
(macroscopic nonlocality would be the)
(potential (so also for brain structure,)
(body etc)

(to illustrate other aspects of)
(the supermodel theory, such as)
(warp / tunneling or more GRT or QMT)
(features, the formalism must be)
(extended somewhat -- for instance,)
(a warp flag should be a movement)
(option for each particle, with a)
(supermodel carrying out the process.)
(however, any further use of formalism)
(may lead to new kinds of bombs etc)
(and it is something which is the)
(responsibility of anyone developing)
(this formalism further,)
(it is not my responsibility)

(here, we put the uncertainty)
(relation to nonlocal interaction)
(between a measurement apparatus)
(and the measured structure, not to)
(the PW in itself on its own; but)
(uncertainty or openness in itself)
(characterises all supermodels,)
(of course; so then the earlier)
(statement on representing position)
(vs tendency is NOT essential;)
(however I feel that the earlier)
(is also a valid perspective)

(square the vector given by)
(the x, y of the "curvature")
(two-dimensionality of PW)
(supermodels)
(give the highest relative)
(x, y, z, d through coded)
(minimum-curvature to each)
(particle, such that)
(00,00,00,00 under zero)
(is x,y,z,d and std curvature)
(is 1000)

(the PMW is the place where)
($E=hf$ excels)

: supermodel_manifest_moment
(in: movement number /)
this_moment ! this_moment @

dup 1 = if
 initialize_std_size_space_duration

 3000000 8000000 9000000
 std_minimum_activation_frequency
 5 already_mapped_in_xml_at_this_line

 3200000 8200000 9200000
 std_minimum_activation_frequency
 6 already_mapped_in_xml_at_this_line

 4000000 6000000 7000000
 std_minimum_activation_frequency


```

7 already_mapped_in_xml_at_this_line

4200000 6200000 7200000
std_minimum_activation_frequency
8 already_mapped_in_xml_at_this_line

( now the xml is mapped to the )
( curvature and the curvature )
( is standardized although of course )
( having flexibility as everything )
( else with supermodels )

std_direction_right
  5 activation_at_this_line

std_direction_right
  6 activation_at_this_line

std_direction_left
  7 activation_at_this_line

std_direction_left
  8 activation_at_this_line

stir_natural_fluctuations

perpetuate_this_moment_into_open_future

activate_PMW

else dup 1 > over 6 < and over 6 > or
if
  get_feedback_from_PMW

  stir_natural_fluctuations

  act_out_results_of_feedback_from_PMW_etc

  perpetuate_this_moment_into_open_future

  do_more_PMW

  convert_this_moment_to_XML_and_usher_it_to_rendering

else dup 6 = if

  make_measurement_like_influence
    7 8 activation_at_these_two_lines

  stir_natural_fluctuations

  act_out_results_of_feedback_from_PMW_etc

  perpetuate_this_moment_into_open_future

  do_more_PMW

  convert_this_moment_to_XML_and_usher_it_to_rendering

then then then
  drop ;

```

BEGINNINGS

This book is beginnings...

To excell in any area requires a love for this area, a love for excellence, a willingness to set aside all plans, all deliberations, all prejudice, and just go for it. It also requires a willingness to trust organic sensitivity, openness and fluctuations, and not insist on some scheme or ideal if the heart says that it is right. Christian Krogh, one of the grand old men at the time that Edward Munch were up and coming as a young painter in Norway, initially wrote: I do not find that the paintings of Munch are finished. Then, after some years, he generously added: But when the heart of an artist says, this is what I wanted to express, then a painting is finished after all, are they not? Well, I am not sure what Munch's heart said about Munch's paintings, but my heart tells me: this book is finished. It is what it is, with all its word variations, (socalled 'spelling mistakes'), its openness (socalled 'contradictions') and its freedom (socalled 'confusions'). Let it be what it is! Let it be reprinted! It is the FIRST AND FINAL edition for I wish to go to the oral stage and give talks and entertain delightful conversations, to walk far and journey much, paint much and dance and do yoga too, alone and with the gorgeous dancers, tantrically and artistically, the girls that turn my mind on...

