Letter to John Ziegler

Hi John,

It is funny how a person can look back at previous correspondence, and suddenly notice something! I'm writing mainly to mention that I appended a footnote to one of *your* comments, when you wrote to me,

> ...your theory about Esbach's lawyer [Paskey] and McGettigan being on my side sounds like a REAL stretch, no?

I have put a footnote on the word 'real' which you capitalized, and the footnote references R. Dedekind's article, where he gives a definition of the real numbers in terms of division of a line into two sides.

Next, to say, I'm at a point of complete confusion about how this could have happened, but it seems to me that to write so rarely to me, but when you did, to write a sentence so clearly summarizing many separate things I'd written about Mathematics, must imply that you have gone online and read some of the things I'd written about mathematics, religion, physics, chemistry, history, philosophy, social science, psychology and about the actual real numbers.

This idea was never in the forefront of my thinking, always an afterthought or digression, but it now seems to be quite simply the main concept in all my thinking over the last two or three years to say what you said in a single sentence, in an example.

I had ended a broad survey article about number theory, class field theory, geometry, and the P=NP problem by saying

When non-mathematicians describe their hopes for 'nonlinear' mathematics, they seem not to really understand what we mean when we speak of the difference between something linear and something non-linear. But what the layman means may be more admirable. The introduction of Weil's 'Basic Number Theory' speaks of bringing Archimedian and non-Archimedian valuations 'under one roof' and 'making them cooperate for a common purpose,' and admits that Riemann-Roch may be independent of Archimedian valuations perhaps just as Hirzebruch and Grothendieck proved later. Long ago Physics dispensed with any notion that space is explained by coordinates in a totally ordered real line. But we do not have explanations for all phenomena that have arisen historically in number theory besides interpreting whole numbers as increments of exactly such an uncountable continuous line. It would be an interesting experiment to complete an ideal of Hirzebruch and Grothendieck, to find a non vacuous interpretation of Hilbert's product formula which does not refer to an Archimedian valuation. Economists interpret real values as though they are intrinsic to thought, perhaps trusting mathematicians who tell them that as far as we know they may really be intrinsic to any human-scale understanding of historical problems about numbers.

In my Economics text I had written based on a comment of the poet Zacharias,

The classical dream of finding a 'classical integral' was a misguided (=guided!) attempt to understand celestrial phenomena; in naive human experience it is an attempt to find an indicator of goodness, something which is a real number, which has a positive direction and a negative direction.

Zacharias was trying to get me to think about the dualism in social theories, in philosophy. I had myself already thought, if you believe there is such a meaningful function as $t^\lambda v^{nR}$ or λt , then just as when you remove one point from a line the line breaks into two connected components, it is also true that when one has a real valued function s on a topological space, which is continuous, and remove the points of a constant s value the space becomes disconnected into two parts.

It is tempting to say, all the possible things that could happen are of two types, the 'good things' and the 'bad things.' Perhaps somehow this underlies the American notion of the 'good guys' so eloquently described by Pispers comedy. That it seems so clear what is good and what is bad, and we have a real valued numerical indicator to tell us which is which. In a job, it is your 'performance,' etcetera.

The philosopher and economist Nicolas Georgescu-Roegen in the 1970's wrote that what is called production may have problems, acccording to the notion that waste has higher entropy than materials involved in production. If one is very rigorous, one sees that he had predicted exactly the additional loss of energy when carbon dioxide is not only released, but mixed with the atmosphere.

The deeper point is not that we should have adjusted our definition of energy to include entropy also, or we should have used entropy instead of energy. It is that there is not *any* way to combine multiple indicators of goodness into any notion of overall goodness.

$$* \quad * \quad *$$

Even in the most cynical analogy with classical physics, there is no such meaningful combination of several variables. It was a misleading coincidence that the n body problem has the classical integral of 'energy' even when it is chaotic. This has led to a deep misunderstanding of science, by the Americans in particular, it has led to a misunderstanding to the effect that energy on earth has an intrinsic meaning. No classical integral is generally found even in classical celestial physics, as I've mentioned elsewhere.

Turning attention on acquisition of energy and maintaining a flow of energy has displaced moral imperatives such as supporting countries which had expressed a hope that it should be possible to turn away from development.

$$* \quad * \quad *$$

The notion that an electron can be converted to a positron by negating its imaginary part is well accepted, and the word 'imaginary' is used only because the things that happen do not fit into a 'real model.' Yet, this only means a model where one works as modern social sciences work, in the manner in which the SPSS program which they all agree to use works. Social sciences have partly ossified into thinking that 'statistics' means agreeing to understand a particular model.

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Each individual decision, each individual contract, is not
a matter of an impulse of any type of happiness being
added or taken away, unless one assumes as an orien-
tation, as the American Psychologist paper had incor-
rectly assumed; that is, a dualism, where there might
have been duality. What Fernando said about informa-
tion and understanding implies that rather than being
measured as empirically valued impulses of 'goodness'
or empirically 'correct information,' human thought and
human interaction with nature could be understood to
interact with what in engineering and information the-
ory had been misunderstood to be a 'protocol.'

One could think that the whole idea was encouraged by my
chairman writing to me,

... you do not currently have a realistic plan of producing
any [research outputs] in the future.

In my Primer on Classical Physics, I actually proved that un-
less all the characteristic classes that have been defined by
mathematicians over many years are trivial, there cannot be
any of what is called an 'action,' the premise upon which, in
Celestial physics, the notion of 'kinetic energy' is based, writ-
ing

The Lie algebra includes d which we chose initially, and
the classical integral corresponding to d itself is some-
times called 'energy.'

and that

The difficulty with the approach of first defining the tangent bundle, where velocity vectors exist, and then defining the different cotangent bundle, where a universal way of measuring velocity vectors exists, is that even in the first thought experiments about relativity, one imagines two people each in his own spaceship, with each one person perceiving the velocity vector of the other. Maybe it would be better if changing point of view between one observer and the other incorporated the duality between the tangent space and the cotangent space. That is, what is the tangent space for one of the two observers might actually equal the cotangent space for the other.

My thinking had partly been originated by a historian Malcolm Dowden, then working as a lawyer, who had written to me that it was not in my interest to accept liability 'regardless of causation.' Who wrote to me eventually about Karl Popper, about Wittgenstein; who had explained the ideas of Equity predating the ideas of law. Who wrote finally to accuse me that my emails were not being written in my own interest, abandoned me, and when it was time for him to send his bill, could never be found, as he had left the practise of law.

At the time I wrote to you to correct myself, to say that Paskey's letter to you accusing you of harrassing not only Jonelle Esbach, but her whole family, was in fact possibly a type of love letter, I know that no one had read my reply, not even you. As the php file at Academia.edu shows that there had been no views. Yet, completely independently of this, I received a harassment complaint of my own from a Mr. Chamblee, and this based on nothing but an absolutely innocent attempt to write comments upon an essay.

My chemistry paper, attempting to describe the spectra (relative energy levels) of atoms says,

All our understanding of the complexities of these spectra is based on shifting sands...

and in a religion essay I had written, after quoting the existing USA recommended standards of K-12 Economics education,

> Surely the idea of a spinor field is going to be abandoned, and the idea that particles correspond to representations, the idea of an SU_3 standard model, the idea of magnetism, all these will be abandoned, we all know that they are wrong ideas. A huge issue is what a young speaker said to me after his colloquium, 'Superposition has a long and distinguished tradition.' But addition of functions, being an invertible operation (having the opposite operation of subtraction) limits it too much to be meaningful. It was somehow connected with notions of probability,and here too, one has a falsely universal notion of probability, not a Bayesian notion, not a relativistic notion; and this becomes forced upon the student if one and all must agree that wave functions combine through superposition, through a shared notion of addition.

> This same notion of addition, falsely supposed to be shared, is implicit throughout the 'K-12 Standards', and is forced upon any student who is required to meet its benchmarks.

And I had written elsewhere in my Economics book things which would almost more suggest that agreements, although described by neither, might be worse described by real numbers than by complex numbers, writing

> While it may have seemed like an intermediate consent, there is no such thing. Building a relationship is not done by incrementally eroding resistance. One does not despise an idea less and less, and then become impartial, and then begin to admire the idea.
>
> Surely females must have an equal and more justified wish that relationships are not begun as animals are trapped, by devices manufactured to work by deception, with parts of visible cruelty once they are seen. The necessity of wealth is one such device; it explains why a landlord is not a partner. That Bernoulli assumed the absence of condoned wealth to be a state of perfect misery implies that he lived in a society which enforced such compliance, with a device equally disguised.

All of these comments have no more depth than your comment in your example.