

Libb,

7<sup>th</sup> June 2011

I received your email 01.06.11 containing your critique of the first chapter of my book, along with your draft manuscript for a possible future book, for which I thank you.

Rather than react immediately to your email, I thought that I should take a bit more time to reply, as I think there are *some* common points to acknowledge, though our approaches are different, yours by considering a top down grand human scenario, and mine an economic system built from the bottom up, backed up by some empirical analyses, and previous independent peer-reviewed work in the journals Energy Economics and the International Journal of Exergy.

Besides your manuscript I have also read some of your other work, in particular: '*Thermodynamic Philosophy of Evolution*' [Dec 2009], '*Neuro Octet Trajectory Theory*' [Jan 2009] and '*Introduction to Human Thermodynamics*' [April 2010], along with your lecture notes '*Human Thermodynamic Fundamentals*'. I am impressed by the amount of research of other people's work that you have collated on your EOHT/IOHT websites.

I note from your websites that most of your own publications appear to be connected with the Journal of Human Thermodynamics, which you edit and run as an offshoot of EOHT/IOHT [*mainly your babies - on my reckoning 97% of EOHT page edits and 60% of threads are yours*]. I am unclear therefore as to the peer-review processes involved with all your work. I have seen a list of HT researchers, contributors and associates, though they are not defined as an editorial board. I should be interested to learn of any papers you have published in journals such as Evolutionary Equations, Molecular Evolution, American Chemical Society, Theoretical Biology or other independent academic journal.

I should point out that before making the comment that my derivation was baseless, you should really have read the whole of my book, particularly chapter 4 and succeeding chapters, as they spell out the Gibbs/Helmholz function as the driver for the economic production system [*and not the gas law as you seem to believe*], just as you use it in the manuscript you sent me, and which figures in a number of evolutionary articles that I have seen. I do not pretend to be an expert on human evolutionary processes. My concern primarily is with economics, as that is what I know. I do have a background as a practising economist, having been a member of the Society of Business Economists and group economist for a corporation of 30,000 people. In your email you point me towards the concept of economic temperature, and ask whether we assume temperature  $T$  equates to trading value. I actually stated that it equates to an Index of trading value. If you had read the book through you would have seen that equation 2.9 conveys the essence precisely. I do not think that the succeeding comments you make in your email help much in modelling economic activity.

Despite the above, I should say that I have *some* empathy for the 'human molecule' approach that you promote. I can accept that there are billions of people on earth with a fairly close percentage of elements in their make up, but I can't accept that they are all the same. There are significant differences in size, strength, colour, sex, intelligence, wealth generating ability etc. Thus I can't accept that a human can be considered to be a single molecule; it's a very complex collection of molecules that has evolved over time, and each human is different from another, with slightly different mixes of contained molecules, neural connections and retained information, and according to the development so far of their genetic make-up. Indeed each has also developed a mechanism to speculate about the whys and wherefores of his/her being. I don't profess to be an expert on the human body or philosophy, but through my expert witness work I have seen and read

literally several thousand reports of eminent experts of various disciplines, and am called upon by the Courts to interpret and convey what they say vis-à-vis my own expertise.

The appeal of the gas law hypothesis to me [*and some other researchers*] is that of homogeneity, whereby all the molecules of a particular breed are considered to be the same, except for the energies [*or values*] they carry. In my book I primarily considered non-human objects of economic value [*a value perceived by humans*] such as money and products, which mostly are the same, a \$ bill is a \$ bill [*bar depreciation of the currency*], and each nail in a box of six-inch nails is the same.

In economics, the means of reconciling the variability of human endeavour with a supposed non-variable human entity is via the wage rate [*\$/hr per head, and accepting that head means an 'average' person*], which approach is championed by the econophysics school, set out in chapter 2 of my book, whereby individual wage rates are spread about a mean according to a skewed/Maxwell Boltzmann distribution. I give an example of that for the US economy. I would have thought that this would give some credence to your approach on the human molecule in terms of their individuality.

Second, I can accept that the laws of thermodynamics (energy and entropy) appear to govern everything in the known universe, including life and humankind, but the corollary for me is that human economic systems, being 'human engineered', must also be governed by the same laws. I have set out the effect of the Gibbs function in my book [*equations 4.4 onwards*], though I considered the alternative Helmholtz function to be easier to apply. At chapter 4 I developed such a production function, which transmitted to the Arrhenius equation, familiar to most chemists. This approach progressed first to an entropy equation linking the motivation force to money and interest rates (chapter 5), to employment and unemployment, and later to energy demand – specifically oil and gas reserves. The Gibbs/Helmholtz function also appeared to relate to the economic concept of utility [*section 3.9*]. I backed up all of these analyses with some empirical research, quite a bit of which has also been presented to some university professors. I have taken the trouble over the years to get my published papers peer-reviewed by academic referees of *independent* journals (plus positive comments also of my working papers). This has been followed by an offer to me from a sponsor and from a major university to fund and set up an interdisciplinary research function. I am thus not persuaded at all by your comments so far about my book.

Turning now to the proposed booklet that you have sent me, correct me if I am wrong, but it appears to make the assertion that the new 'God' or purpose of mankind is a form of the Gibbs function, i.e. that science has disproved the God of old as envisaged so far by humankind. I do have regard for the writings of Richard Dawkins, and I have read up on the works of W D Hamilton and George Price, though religion and evolution are not my research interests.

I do not have a particular or heavy religious conviction, but acknowledge that there exists a range of religious opinion from the completely atheist, through to that based on a morality, and on to that which flies in the face of any reason. It is reasonable on occasion to wonder at the why, how, what, if, origin of everything, if indeed there was an origin. I should point out in passing that your graph of the belief in God by scientists has only three points in it, hardly convincing – you could fit any number of curves to this, and the form  $y = ax^2 + bx + c$  (a U curve) gives a correlation coefficient of  $R^2 = 1$ ! You would be advised to rephrase/re-present this, perhaps as a bar chart. It would be churlish of me however not to concede that the advance of scientific knowledge has impacted on old ideas about religious beliefs, and to survive, religions and religious ideas have to be compatible with the way human horizons are developing. This begs the question as to whether religion has a basis at all, except to speculate about the unexplainable to the date of speculation, taking into

account events and human experience from the past, and to provide a moral code on which to live with one another [*the selfish gene?*]. Despite your statement that God [*of old, I assume*] has been disproved, it is not in my view possible to prove/disprove the existence of a first cause, or how/whatever one might describe this, and how matter came into existence, or just is. Each person, scientist or otherwise, has to draw their own conclusion. I would accept that *if* man were regarded as a very complex chemical/neuro group of molecules, then the same would also incorporate neuro-links with the ability to speculate about its very being. You might care to look at the forecasting technique of exponential smoothing as a means of adapting views of the future, taking into account past information and current trends.

I note that you describe the Gibbs function as the sum of:

- *Internal energy U as a system of interactive relationships, working, social and intimate*
- *Volume changes [PV] as energy associated with personal space boundary regulation*
- *Entropy Energy [TS] Transformation content*

These descriptions are somewhat vague, in my opinion, and do not lend themselves to empirical representation and measurement, and I do think that you have to address this problem.

In respect of your writings from section 5 onwards, I am not an appropriate person to address these to, perhaps one of the journals that I listed earlier?

At page 26 you refer to the theory of life for the average person as being born, having life and dying, and that the chemist does not see things that way. I would point out that in a non-reversible chemical reaction, input compounds 'die' and output compounds are 'born' from their death. It just a question of words used.

I think that your book as it stands will meet a lot of flak from serious academia, but hope that my comments are of help. I wish you luck in your endeavours.

At present my workload prevents me from getting further involved with a lengthy discourse with you, though I will obviously keep abreast of what is happening at EOHT.

With kind regards

John Bryant.