International Journal of Enhanced Research in Science, Technology & Engineering
ISSN: 2319-7463, Vol. 7 Issue 6, June-2018, Impact Factor: 4.059

The "Science" Called History: On Some Recent Attempts to Reinterpret Social Sciences through Physics

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Philip Ball's *Critical Mass* (2004) is a brave attempt at making a science out of social sciences, if the irony in this phrase is to be emphasized, for Ball's tour de force insists that social sciences can be and should be re-located within the matrix of physics.[i] It is immaterial, *stricto sensu*, whether the social scientist whose concept or explanation is being translated by Ball into the lexicon of physics could themselves might have been aware of this potential outreach of their contribution. In this sense, it can be said that physics is not only the underlying ultimate explanation of the social, it is also the unconscious of social sciences. No wonder that then that in the formative period of social sciences—the eighteenth century—a number of pioneers regarded social sciences to be an extension of what they called as natural philosophy. It was believed that the Newtonian mechanics would sooner or later explain out the whole of the universe, including the sociological. Present day obsession with data, or what is called as "surveillance capitalism"[ii], with the profusion of computers seems to imply a kind of return of the repressed of this early history of capitalism with its belief in the eternal progress of sciences and their omniscient explanatory powers.

Ball uses concepts from network theory, game theory, and statistical mechanics to show how basic laws guiding human behaviour may give rise to complex social phenomena like market trends, traffic flow, and political movements. Ball contends that by comprehending these fundamental ideas, we may learn things about social questions that are frequently more trustworthy than information gleaned from conventional social science methods. If it reminds the reader of Hegel's dictum that the whole is not the sum of the parts, it is not entirely accidental. The core problems of social sciences, e.g. social change, agency, interpretation etc. mostly concern which typically elude a strictly quantitative analysis. The revolution over the last few years, since the development of data sciences, etc. is that even qualitative is supposed to be interpreted via the quantitative.[iii] The Hegelian counterpoint to this development would be another pointer, that the efflorescence of data research has not simply led to a profusion of the quantitative over the qualitative: it has led to a qualification of the very quantitative. In other words, data-based analysis seems to lose its edge precisely when it has reached an apex, when it soon transforms into trivia or even gibberish, which also sounds like a radical inversion of the infinite monkey theorem.[iv]

However, credit is due where it should be. *Critical Mass* attempts to reinterpret the **whole** of social science, from its foundation within the mechanistic philosophy of Hobbes to Adam Smith to Karl Marx (there is a fascinating discussion of Marx's economic theory of capitalism in Ch. 8) who was radically anti-Hobbesian. After making some insightful remarks on the "misguided" parallels between Marx's theory of capitalism and Darwin's theory of evolution (Ball seems to have entirely missed out on Marx's ruthless criticism of Malthus, which formed the basis of Darwin's theory), Ball contends that "Marx's approach seemed the epitome of scientific model building: he idealized, he simplified, he removed irrelevancies"[v], which in other word is a politely framed charge of reductionism. The issue under discussion is Marx's prognosis of capitalism, which predicted falling rate of profit and capitalism's ultimate doom. However, Marx's mature writings seem to be a little more complicated than this, and the whole history of development of Marxist theories of capitalism is essentially a way of overcoming Marx's mechanical sounding demise of capitalism by pointing out to super profits emerging from colonialism and imperialism.[vi] Philip Ball recasts the existence of "syncs" existing outside the global capitalist framework through the physics and engineering equivalent of "negative feedback whereby a change moderates its own cause". He explains that negative feedbacks might promote stability of the system despite the boom-and-bust cycles inherent to capitalism. Hence, he charges Marx of overlooking the depth of his own theory due to his colour-blindness to his political predisposition.[vii] This kind of analyses have been made by various Marxist commentators and theorists, from Lenin onwards. There indeed seems to be some merit in Ball's method if not his attempt at novelty.

It seems to valid to point out that such re-interpretations of social sciences, especially Marian ones, via physics have been made before too. Robert Biel's worth reading book re-looks the whole question of capitalist reproduction to one of its ultimate demise through natural causes, not political.[viii] Marx's usage of the term "metabolic rift" to characterise capitalism's relation with nature whereby value is created and transformed through the labour process under a capitalist framework is re-applied to the question of ecological viability of capitalism. Biel's book frames this question in terms

of thermodynamics, applying the concept of entropy. This reminds of Fredric Jameson's oft-quoted statement that it is easier to imagine the end of the world (through asteroid collision, ecological destruction, disease, etc.) than to imagine the end of capitalism. It is not entirely insignificant that Biel also poses the question of entropy of capitalism with relation to the question of imperialism. Thus, the physical concept of entropy seems akin to the natural limit to expansion and development of capitalist business cycle. However, as Marx wrote, the limit to capital is capital itself.[ix] In other words, the tension between capital's expansion and the natural limit is a limit inherent to capitalist dynamic. Any thought of overcoming this tension and unleashing its full dynamic is therefore fantasy strictly limited to capitalism itself.

However, one of the most insightful essays in Philip ball's book is Ch. 3, titled "The Law of Large Numbers", which discusses Quetelet's plea for statistical approach to social questions. Ball informs that the inspiration behind such approach was the thermodynamics governing the laws of motions of gas particles. Quetelet's approach was not to aspire for the best samples, but to aspire for the average. To be average was to be great. Collecting statistical data on a number of social questions (like conscription, census, etc.) was crucial. The basic idea was to treat individuals in society like atoms. This leads Ball to assert that Kant in his essay on universal history was driven from this very scientific approach to universality. Here, the crux of social science approaches: to think of the collective within the randomness of the individual. This also leads him to comment on the question of free will and discuss writers like Dostoevsky and Tolstoy.

To be fair, a scientific approach to social questions is nothing new. It has been undertaken by numerous people before. Friedrich Engels sought to combine the dialectical method with the theory of historical materialism. He even came out predicting not only World War I but also World War II.[x] Thomas Schelling's use of game theory is famous. Herbert Simon used cognitive psychology and economics. Serge Glam argued for sociophysics. Jean-Philippe Bouchaud argued for econophysics. What makes Ball's book a special one is that he is able to synthesize most of these approaches and rewrite a history of social sciences which is at the same time a history of physics attempting to interpret the social.

An interesting contribution here is that by the Lacanian psychoanalysis.[xi]The work edited by Glynos and Stavrakakis examines how Lacan's theories interact with and challenge the epistemological underpinnings of science. It looks at Lacan's perspective on the link between science and psychoanalysis, especially his doubts about science's capacity to adequately represent the complexity of human subjectivity. Despite the accumulation of scientific knowledge and the staggering insights science has led to, science is unable to capture the totality of its knowledge about the human subject and requires the assistance of philosophy to capture what it seeks to represent. Lacan was especially interested in the application of mathematical structures like topology to the modeling of psychoanalytic concepts. The book explores the ways in which Lacan used these mathematical instruments to explain his theories, including the unconscious's structure. A few of the book's chapters address how Lacanian theory relates to recent advancements in these fields. These pieces explore the possibility that Lacanian psychoanalysis can shed light on how the brain and the biological basis of human behavior explains obstacles in its own path, the ontological name for which is 'jouissance' in Lacan. According to Alain Badiou, truth appears in the subjective experience, especially when it comes to language and the unconscious. According to Lacan, truth is always imperfect and entwined with the desires of the subject; it is never entirely expressed or grasped by science.

Another argument that seems to have been missed by Ball seems to have been the influence of social science on the development of sciences. This is particularly observable in biological sciences from the beginning of the evolutionary theory and henceforth. Carl van Linnaeus's systematization of nature led to the frenetic search for specimen and observations. This inspired the development of both evolutionary thought and history writing.[xii] Similarly, Immanuel Kant not only founded German Idealism but he also contributed to the understanding of cosmology. Kant's anthropology seems to be linked to Kant's cosmology. Science, especially in realm of policies and implementation, is linked to various ideological projects which are deeply political as well as socio-economic. J. D. Bernal used to emphasize how even the study of natural sciences has to be different in different contexts, like in developing countries from that of developed one.[xiii]

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