the general science journal

Boscovich: Corpuscle to Quantum Physics

Roger J Anderton
R.J.Anderton@btinternet.com

Boscovich when dealing with Newton's corpuscular theory of light used the Latin term “quantum”, from this modern physics adopted using the term “quantum” with its so-called Quantum Revolution. So really Quantum physics is derived from Newtonian physics. The main difference is that Einstein took a heuristic approach – i.e. guessing, and so introduced errors. Thus modern quantum physics comes from Newtonian physics with addition of Einstein's errors into the mix.

Father Boscovich was a genius working in the 18th century on Newtonian physics making significant next steps in the development of Newtonian physics. (As dealt with in previous articles.)

In his book De Viribus Vivis (On Living forces) 1745 he deals among other things with Newton's corpuscular theory of light and starts using the Latin term “quantum”.

A significant quote is: “Et quidem ita putamus, luminis repulsum in reflexione non fieri ab impactione in eam superficiem, a qua id reflectitur, ut eam propositionem censeamus a Newtono demonstrari, quantum in physicis licet.”

Which gets translated as:

“And so we think there is no reflection of light repulsed to be made from the surface of stumbling into it, from which it is reflected back, to think it a proposition demonstrated by Newton, quantum in physics, though.”

The relevant words are: “quantum in physics”.

Latin to English dictionary [1] gives:

Latin	English
quantum	**adv, regard to, as much as, the more, the greater**
quantum	**how much?, how much!, as much as.**
quantum	**(+ gen.) as much of ... as.**

So the phrase “quantum in physics” is really referring to the quantity of light.

The fact that the term “quantum” as used in Quantum physics comes from Latin is an accepted fact if we can accept wikipedia [2] which says:

“The word "quantum" comes from the Latin "quantus," for "how much."”

So that is not new; what I am pointing out is that Boscovich working on Newton's Corpuscular theory of light and writing in Latin is using the term “quantum”.

But going by wiki as a rough guide to what mainstream wants to go by, the mainstream is not prepared to trace the use of the term that far back.

So wiki use of the term is described as follows:

“ "Quanta" meaning short for "quanta of electricity" (or electron) was used in a 1902 article on the photoelectric effect by Philipp Lenard, who credited Hermann von Helmholtz for using the word in the area of electricity. However, the word quantum in general was well known before 1900.[2] It was often used by physicians, such as the term quantum satis. Both Helmholtz and Julius von Mayer were physicians as well as physicists. Helmholtz used quantum with reference to heat in his article [3] on Mayer's work, and indeed, the word quantum can be found in the formulation of the first law of thermodynamics by Mayer in his letter [4] dated July 24, 1841. Max Planck used "quanta" to mean "quanta of matter and electricity",[5] gas, and heat.[6] In 1905, in response to Planck's work and the experimental work of Lenard, who explained his results by using the term "quanta of electricity", Albert Einstein suggested that radiation existed in spatially localized packets which he called "quanta of light" ("Lightquanta").[7]

“The concept of quantization of radiation was discovered in 1900 by Max Planck, who had been trying to understand the emission of radiation from heated objects, known as black-body radiation. By assuming that energy can only be absorbed or released in tiny, differential, discrete packets he called "bundles" or "energy elements",[8] Planck accounted for the fact that certain objects change colour when heated.[9] On December 14, 1900, Planck reported his revolutionary findings to the German Physical Society and introduced the idea of quantization for the first time as a part of his research on black body radiation.[10] As a result of his experiments, Planck deduced the numerical value of *h*, known as the Planck constant, and could also report a more precise value for the Avogadro–Loschmidt number, the number of real molecules in a mole and the unit of electrical charge, to the German Physical Society. After his theory was validated, Planck was awarded the Nobel Prize in Physics in 1918 for his discovery.”

So mainstream only wants to deal with quantization of light dating back to Planck 1900, and does not really want to admit these idea going all the way back to Newtonian corpuscular theory of light.

i.e. it wants to maintain a pretence that modern quantum physics is somehow different to any development from Newtonian corpuscular theory.

In contact with Augustus Prince who at present is looking into the Photoelectric effect from a Boscovichian view point, he referred me to the article: “Non-Einsteinian Interpretation of the Photoelectric Effect” by Roger H. Stuewer. [3]

In that article it talks of Thomson's second theory 1913 among other things and says : “In his new model, Thomson postulated the co-existence of two forces: a radial inverse cube repulsive force

“diffused throughout the whole of the atom,” and a radial inverse square attractive force “confined to a limited number of radial tubes in the atom.”

So an electron would oscillate about an equilibrium position with a frequency depending on the force constant of the repulsive force. From this he got E=hv by ad hoc method.

That is application of Boscovich's theory. Such things are dealt with in more detail by Dragoslav Stoiljković [4] who says : “It is known that the [book] theory of natural philosophy … , published by Ruger Boscovic two and half centuries ago, has served as a stimulation for a plenty of subsequent scientific achievements. There are many presentations about that in the reviews dealing with the history of natural sciences. There are many presentations about that in the reviews dealing with the history of natural sciences. According to our knowledge, however, up to now it has not been noticed that Boscovic's theory is a quantum theory indeed.”

Roger H. Stuewer continues: “.. in the fall of 1968, I met Professor Peter Franken at the Sommerfeld Conference in Munich and learned from him that it is possible even today to account for the main features of the photoelectric effect along non-Einsteinian lines, that is, without assuming light quanta or photons to be incident on the atom. In brief, Franken has constructed a theory from well-established quantum mechanical base, tine -dependent perturbation theory. An atom in its ground state, described by Schrodinger's equation, is assumed to be subjected to a classical electromagnetic wave of frequency v, which perturbs the state of the atom. Assuming that the incident wave is enough energy to bring about a transition to the continuum, time-dependent perturbation theory shows that only a definite level in the continuum will be excited. This level of energy hv above the ground state, so that w0 is the ionization potential of the atom, the level corresponds to the free electron of kinetic energy T = hv – w0, which is Einstein's equation.”

So there is a classical approach to quantum physics, but note that is referred to as “non-Einsteinian”.

The Einstein approach is referred to as - Einstein's light quantum hypothesis (his “heuristic point-of-view”)

Going by wiki, heuristic means [5] :

“Heuristic (/hjʊˈrɪstɨk/; or /hy*oo*-**ris**-tik/; Greek: "Εὑρίσκω", **"find"** or **"discover"**) refers to experience-based techniques for problem solving, learning, and discovery. Where an exhaustive search is impractical, heuristic methods are used to speed up the process of finding a satisfactory solution. Examples of this method include using a rule of thumb, an educated guess, an intuitive judgement, or common sense. “

So Einstein's approach is basically just guessing. Einstein is reduced by his supporters to having to take a guessing approach instead of working on the achievement of others before him, because Einstein in his famous papers does not cite references.

What can confuse things a bit is that we thus have “quantum” based on Einstein's guesses and “quantum” based on a classical non-Einsteinian approach; I.e two different versions of “quantum”. So when people say they disagree with “quantum” and prefer “classical” approach that should really mean they prefer a non-Einsteinian “quantum.”

Ian Mosley, among others points out that Einstein gave no references in his papers, and in regard to relativity points out [6] : “Sir Edmund Whittaker in his detailed survey, A History of the Theories

of Aether and Electricity, Volume II, (1953), included a chapter entitled 'The Relativity Theory of Poincare and Lorentz'. Whittaker thoroughly documented the development of the theory, documenting the authentic history, and demonstrated through reference to primary sources that Einstein held no priority for the vast majority of the theory. Einstein offered no counter-argument to Whittaker's famous book. . ."""

I would like to point out that those going by Einstein introduce errors into relativity theory, and would not like to accept Poincare-Lorentz theory as same theory as Einstein's. So Einstein adds errors into relativity theory. (Several of my articles deal with this issue.) So although most of the work was done by others, Einstein is making his contribution- no matter how bad that contribution is by his guessing.

So we have the approach of Einstein which is supposed to be guessing and not built on work previous to his, or we have an approach fully documented in the history of development from Newtonian physics. The mainstream has as its hero – Einstein and so prefers to go by Einstein's guesses and so introduces his errors, rather than look at theoretical development previous to Einstein and try to correct Einstein's mistakes.

References

[1] http://www.freedict.com/onldict/onldict.php

[2] http://en.wikipedia.org/wiki/Quantum at 31- 10-2012

[3] Non-Einsteinian Interpretation of the Photoelectric Effect, Roger H. Stuewer, Minnesota Studies in the Philosophy of Science,Vol V (1970) 246-263.
http://www.mcps.umn.edu/assets/pdf/5.11_Stuewer.pdf

[4] Archeology, II, 4/2005. UDC 514.84 Original scientific paper DRAGOSLAV STOJILJKOVIĆ

Faculty of Technology, Novi Sad THEORY AS RUĐERA BOŠKOVIĆA
ROADMAP TO QUANTUM MECHANICS, Stojiljkovic, D., Polymers, **4** (1983) 289
Dragoslav Stoiljković Faculty of Technology, Novi Sad, THEORY OF RUGER BOSCOVIC AS A Road SIGN TO QUANTUM MECHANIC http://translate.google.com/translate?hl=en&sl=sr&u=http://scindeks-clanci.ceon.rs/data/pdf/1820-0958/2005/1820-09580504181S.pdf&prev=/search%3Fq%3DDRAGOSLAV%2BSTOILJKOVI%25C4%2586%2Bpdf%2Bboscovich%26start%3D30%26hl%3Den%26client%3Dfirefox-a%26hs%3DIKb%26sa%3DN%26rls%3Dorg.mozilla:en-GB:official%26biw%3D1024%26bih%3D629%26prmd%3Dimvnso&sa=X&ei=DneSUM9txavRBZPPgKAO&ved=0CB4Q7gEwADge

[5] http://en.wikipedia.org/wiki/Heuristic at 1-11- 2012

[6] Albert Einstein: Plagiarist and Fraud, August 17th, 2010, by Ian Mosley
http://us.altermedia.info/news-of-interest-to-white-people/albert-einstein-plagiarist-and-fraud-2_7593.html

c.RJAnderton1-11-2012