

«The Stage of Empirical Weightlessness of the Theory» (SEWT) and the Existing's Problem of Empirical Entities»

Many physical and cosmological theories have a period when the theory as a whole is built, but do not receive their empirical verification . We call it « The *stage of empirical weightlessness of the theory* » (SEWT)¹.

According to SEWT methodological question arises : can we speak about empirical existence of the new predicted entities before their empirical verification ? To answer this question lets consider the Carnap's approach. According to Carnap it is necessary to construct «Linguistic Frameworks»² and differ *internal* and *external* questions³. The internal questions will be interested for us. For introduction of the new predicted empirical entities it is necessary to enter new linguistic framework – new forms of constants into two steps. We shall take for this purpose the elementary example, from the SEWT's point of view, the prediction and opening such planet as the Neptune. The linguistic framework in case with the Neptune is empirical, therefore the question of existence this planet must be proved empirically.

If we accept Carnap's position, the surprising picture opens behind us. So, we should ask a question: whether there was a planet Neptune before 1845 and earlier, if it has been opened by observations at September, 23th, 1846 ? The *sound scientific sense* insists that – it has existed! However Carnap's approach forbids it to state.

Really, if the factual existence does not follow with necessity from analytical existence, so, how all scientific predictions about existence of natural entities are possible without exception? Carnap's remark that up to the observation, we cannot say anything certain, all the same does not remove a question of scientific sound sense: whether there were the predicted natural entities *before* their observation? If "yes", then, in analytical existence there is "something" general with factual existence. If "not", it means that this natural entity "has arisen" during the moment of its first observation. But this conclusion follows to obvious absurd. So, the background radiation with temperature $2,7^0 K$, predicted by George Gamov in 1948⁴ and opened by A.A.Penzias and R.V.Wilson turns out, that, it "has arisen" during "the moment" of its opening in 1964, that is later 15 billions years after *it became* actually as a «background radiation». By other way - whether there was a background radiation in an empirical reality from 1948 up to 1964 year, that means during that period when it was in the field of analytical existence? This number of difficulties could be continued endlessly. Carnap insisted that the factual existence does not follow from analytical existence in any way. It is really fair concerning the concepts describing *empty* sets, but is it fair with the requirement concerning *nonempty* sets, such as, « the Planet of solar system " Neptune ", « W^+ bozon as an agent of electroweak interaction» etc. ? Here empiricism faces, as it seems to us, with insuperable difficulties to it.

¹ For A. Friedman's theory of *evolutionary* Universe this period last from 1922 up to 1928; for the Gamov's theory of *hot* Universe - from 1948 up to 1965; for the Gleshou – Salam-Weinberg' s theory of *electroweak interactions* - from 1960th up to 1983; for the Guth-Linde *inflationary* theory with 1981-83 up to 2005, etc.

² Carnap R., *Empiricism, Semantics and Ontology//Meaning and Necessity: A Study in Semantics and Modal Logic*, enlarged edition (University of Chicago Press, 1956).

³ Carnap suggests: "to distinguish two kinds of questions of existence: first, questions of the existence of certain entities of the new kind *within the framework*" - he calls them *internal questions* - and "second, questions concerning the existence or reality *of the system of entities as a whole*, called *external questions*"

⁴ Gamov G.// *Phys.Rev.* - 1948, - V.74, P. 505.