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A short story about Yu.L. Klimontovich, V.P. Silin, K.P. Stanukovich and quasilinear theory

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This story is mainly about Yu.L. Klimontovich and less about V.P. Silin, the two people whom I deeply adore, and just a very little about K.P. Stanukovich. We were friends with Yu.L. Klimontovich since 1959 till his death at the end of 2002. At our seminars on theoretical physics at the General Physics Institute of Russian Academy of Sciences (GPI RAS) he was jokingly called "the last Boltsmann of the modern physics" (and every joke contains a lot of truth). And I consider (and not only me) that my mentor, V.P. Silin, is the most powerful intellect I ever witnessed. K.P. Stanukovich was not the least physicist and his equation of a matter state during an explosion, the equation of Landau-Stanukovich, is priceless.

I got acquainted with Yu.L. Klimontovich in early 1959 at Silin's, whom Yu.L. Klimontovich attended frequently. That time Yurii Lvovich and Viktor Pavlovich were friends and cooperated fruitfully in the field of kinetic theory of fluctuation in plasma. They were these fluctuations which became the source of their conflict and their relations since then cooled down. At the same time each of the scientists was right in his own way.

The history was as follows. From the Journal of Experimental and Theoretical Physics (JETP) Yurii Lvovich received a request to review the article by Yu.A. Romanov and R.F. Filipov on the development of quasi-linear theory of plasma oscillation based on the Vlasov's kinetic equation (which was published in 1961 – vol. 40, p. 123). The request had an attachment of E.M. Lifshits where he asked to be as strict as possible with the review since the portfolio of the papers to be published in JETP was too large. This kind of a request was quite regular when the portfolio of JETP was overflowen and it was indeed like this in 1961. Yurii Lvovich held this article for a year and there were enough reasons for that. The Vlasov's equation does not contain fluctuations, and deriving an equation of quasi-linear theory one has to take an average over random phases (or over time, as was noted by A.A. Vedenov in the collection of works "Problems of the Theory of Plasma" vol. 3 page 203, Atomizdat, 1963). Finally, Yurii Lvovich gave a positive opinion to the paper, and it was published. Meanwhile, the same topic was considered in the papers by A.A. Vedenov, E.P. Velikhov and R.Z. Sagdeev in Uspekhy Phys. Nayk (UPN, 1961, vol. 73, p. 701) and in Nuclear Fusion (1961, vol. 1, p. 82) which appeared the same year. Of course, coincidences may happen, but it should be noted that it was an urgent problem that time, and it was not an accidence that several papers were simultaneously published regarding the derivation of kinetic equations for the plasma with regard to heat fluctuations (A. Lenart. Ann. Phys. 1959, vol. 10, p. 390; R.Balescu, Phys. Fluids, 1960, vol. 3, p. 52; O.V. Konstantinov, V.I. Perel JETP, 1960, vol. 39, p. 861; V.P. Silin, JETP, 1961, vol. 40, p. 1769). The equations of quasilinear theory were quite similar to those derived in the above works but instead of heat fluctuations they included overheat fluctuations.

One way or another, the articles by Yu.A. Romanov and R.F. Filipov and A.A. Vedenov, E.P. Velikhov and R.Z. Sagdeev were published in the same year, but the first one with the delay of 1 year since the submitting. One should also take into account that at that time the chief editor of the theoretical part of JETF was M.A. Leontovich. He was, by the way, very well informed about the necessity of introducing the theory of fluctuations into kinetics (JETF, vol. 5, p. 211); A.A. Vedenov, E.P. Velikhov, and R.Z. Sagdeev were his “apprentices”. Hence, an old Russian proverb “own children smell differently” hits right into the mark.

The above story I have heard between the lines from Viktor Pavlovich Silin and therefore I understand his “blame” of Yurii Lvovich. But Yu.L. Klimontovich was innocent in this case: firstly, he knew nothing about the works of A.A. Vedenov, E.P. Velikhov and A.Z. Sagdeev and secondly, the problem of introducing fluctuations into the Vlasov’s kinetic equation at that time and even now has not gained full acceptance, to say it mildly.

Now about K.P. Stanukovich again. This was during the defense of doctoral thesis by Yu.L. Klimontovich in early 60-s. The successful defense was celebrated in his flat that was in Lomonosov Ave. It was late spring, warm days of the late May, and I came there a little late in a red flannel checkered shirt without a coat. For some reason the door was opened by K.P. Stanukovich, who was already well drunken. As soon as he saw me he uttered – “if stupid, what for to advertise?”. Being a spiritted Georgian, I could not let it be like that, grabbed this short and round man and was intending to demonstrate to him who was “stupid”. But at that moment Yurii Lvovich interfered and I gave up. This was my first acquaintance with Kiril Petrovich Stanukovich, which later transformed into a solidarity – later we often united our forces to defend mistreated physicists.

Resuming, I wanted to tell the story not about him but about Yu.L. Klimontovich and V.P. Silin and the end of their friendship which put an end to one of the most productive co-operations two really talented theoretical physicists at the peak of their career. All of I am telling in this paper is my very subjective perception of the events. Therefore, I would like to warn the reader that this perception may not coincide with the official viewpoint of the community of physicists in our Country, now defunct.