Translation into English: Chapter 2 - Catalogue of Errors for Both Theories of Relativity

from the German documentation of G.O. Mueller

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J: Mass-Velocity Relationship / Error No. 2

The experiments conducted by Kaufmann (1901, 1902, and 1906) are said to have provided proof of a relativistic increase in mass with increasing velocity

Galeczki / Marquardt (1997, pp 140-145) draw attention to the following facts:

(1) The Kaufmann experiments with the proof of a mass-increase effect were conducted long before the development of relativistic dynamics.

(2) Kaufmann's apparatus used fast electrons from a beta-radiation source and examined their motion between two conductor plates in an electrical field and a magnetic field perpendicular to this (p. 141): "this apparatus has clearly nothing in common with the interaction-free inertial system of an STR observer."

(3) As regards the inclusion of the Kaufmann-like experiments in the world of relativity (p. 140): "The access of relativity to m(v) occurs naturally via the Lorentz transformation, since v is the same velocity of which it is demanded that it dilates times and contracts lengths. In the cases of lengths and times it is already hard to swallow that they follow the dictates of a transformation. That masses are created through a mere transformation, however, is highly absurd."

(4) Allusion to the critical-survey article by Faragó and Jánossy (1957) on the experiments conducted by Kaufmann and his successors from 1907-1940.

Theimer 1977 (p. 82): "If the change in mass is real, then the observer no longer has a need to thank a Lorentz transformation for this impression. He already sees a real mass ... and reports, unchanged, a mass ... as a 'classic' observer. His measurement is not relativistic and the result is not derivable from the theory of relativity. A truly relativistic measurement would be one for which it [the formula] would transform in keeping with Lorentz, but then some other result would be given. If he makes m[index 0] the starting point of his calculation he has already anticipated Einstein's hypothesis as to the generation of [formula], and so cannot prove it."

Ives (1943) had, by the way, derived a dependency of the mass without STR, in keeping with Newtonian conservation and with the assumption of the classical properties of wave systems.

Every single attempt of the relativists to depict the experiments of Kaufmann and his successors as confirmation of their STR comes to grief on two irrefutable circumstances: (1) the results are won from electrons and not from the interaction-free inertial systems of the theory; and (2) the calculated effect is absolute and has nothing relativistic about it. Theimer refers to the consequences of a truly relativistic treatment.

Ives, Herbert Eugene: Impact of a wave-packet and a reflecting partikel. In: Journal of the Optical Society of America. 33. 1943, pp 163-166. Reprinted in: The Einstein myth and the Ives papers. 1979, pp 101-104. - Faragó, P. S.: Review of the experimental evidence for the law of variation of the electron mass with velocity / P. S. Faragó, L. Jánossy. In: Nuovo cimento. Ser. 10, Vol. 5. 1957, No. 6, pp 1411- 1436. - Theimer 1977. - Galeczki / Marquardt 1997. -