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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L: Gravitation / Error No. 1

In the STR, there are said to be inertial systems that are subject to no gravitational effects

As to the question of the existence of inertial systems, attention must be drawn to the following:

(1) It is held as generally accepted that the structures of matter in the cosmos are determined by gravitation.

(2) The relativists themselves make use of Mach's principle, according to which processes on the earth are determined by the masses of the fixed stars of our galaxy and their gravitational effects, to respond to Lenard's question as to why, with the sudden braking of a train, all objects within the train that are not fastened down collapse together, due to their inertia, but the church steeple next to the railway does not fall down: the gravitating masses of the fixed stars are said to cause the forces of inertia of the objects.

(3) Die limitation of a theory to inertial systems leads to a limitation of the perspective to pure kinematics. According to Galeczki / Marquardt (1997, p. 47) kinematics is "the presentation of a motion without concerning oneself with its physical relationships.

In terms of the kinematic way of looking at things it makes no difference whether the earth moves around the sun ... or vice versa."

In view of these three preconditions the relativists want to justify the existence of their gravitation-free inertial systems with the usual "ignoring" of smaller effects in physics: the gravitational effects are said to be so small that one need not include them in the calculation. Such ignoring would only be legitimate for as long as the theory consequently held to the "ignoring" - which it clearly does not do. For this reason the concept of the inertial system and even the assumption of a "threefold endless great diversity of equally justified systems" (v. Laue, 1913, p. 34) is only a fiction of the STR, without any basis in physical reality. If the fixed stars (distant masses) can exert an effect on objects in an railway carriage on the earth by means of their gravitational forces, then there is no place in our galaxy for an inertial system that is free of the effects of gravitation. The relativists themselves regard the gravitational forces as not small enough to ignore. Otherwise they would not use them to justify the forces of inertia of the non-fastened objects in the braked train.

From a fiction such as the inertial systems no generalized conclusions can be derived for all of reality. There is no physically real transition from an initial limitation to fictitious inertial systems to a reality that is dominated by gravitation and other forces and almost exclusively shows non-inertial (!) motion.

Galeczki / Marquardt (1997) analyze in detail the problems of inertial systems (pp 45-46): "Everything here takes place with the wonderful straightness and regularity that the critical observer, without drastically ignoring the hierarchy of motion surrounding him, *never* finds in nature; rotations, changes of direction, braking and acceleration, etc. are excluded from what's going on. Inertial systems, the ideal of a jerk-free moving wagon, are loved in the field of mechanics, because the question as to what it is ... actually good for, always moving only at constant speed with respect to something else, is never asked. [...] There are already difficulties in reconciling one constant linear velocity with a local approximation. Despite (or perhaps because of?) the usefulness of textbooks, an endless multitude of inertial systems is a concept that is too unrealistic for dynamic happenings, whereas *one* fundamental inertial system is indispensable. The influence of all existing masses [cannot be] dismissed by words - something which also applies to these masses themselves. There is no point in speaking about the uniform relative speeds of only two lonesome masses in outer space, to say nothing of a single mass on which a single force is said to be exerted. All possible forms of motion can be attributed to such pathologically skeletonized systems. Their generalization

is then only one small step, but one with far-reaching consequences. It is therefore important never to lose sight of the difference between dynamics and kinematics. Nature knows no strictly kinematic motion that is isolated from all energy-related considerations."

In the cosmos there is no "place" without fields of gravity, and there is no place for an STR without gravitational effects. As the master of the cosmos, gravitation brings all attempts to escape it, by means of a theory, to grief. Albert Einstein's presentation of the GTR as a theory of gravitation seeks to avoid this defeat, which is why the GTR is also interpreted and welcomed by Max Abraham as a revocation of the STR.

M. v. Laue, 1913, p 34. - Galeczki / Marquardt, 1997, pp 45-51.