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Is General Relativity really a Theory of Relativity? An early Dispute between Erich Kretschmann and Albert Einstein

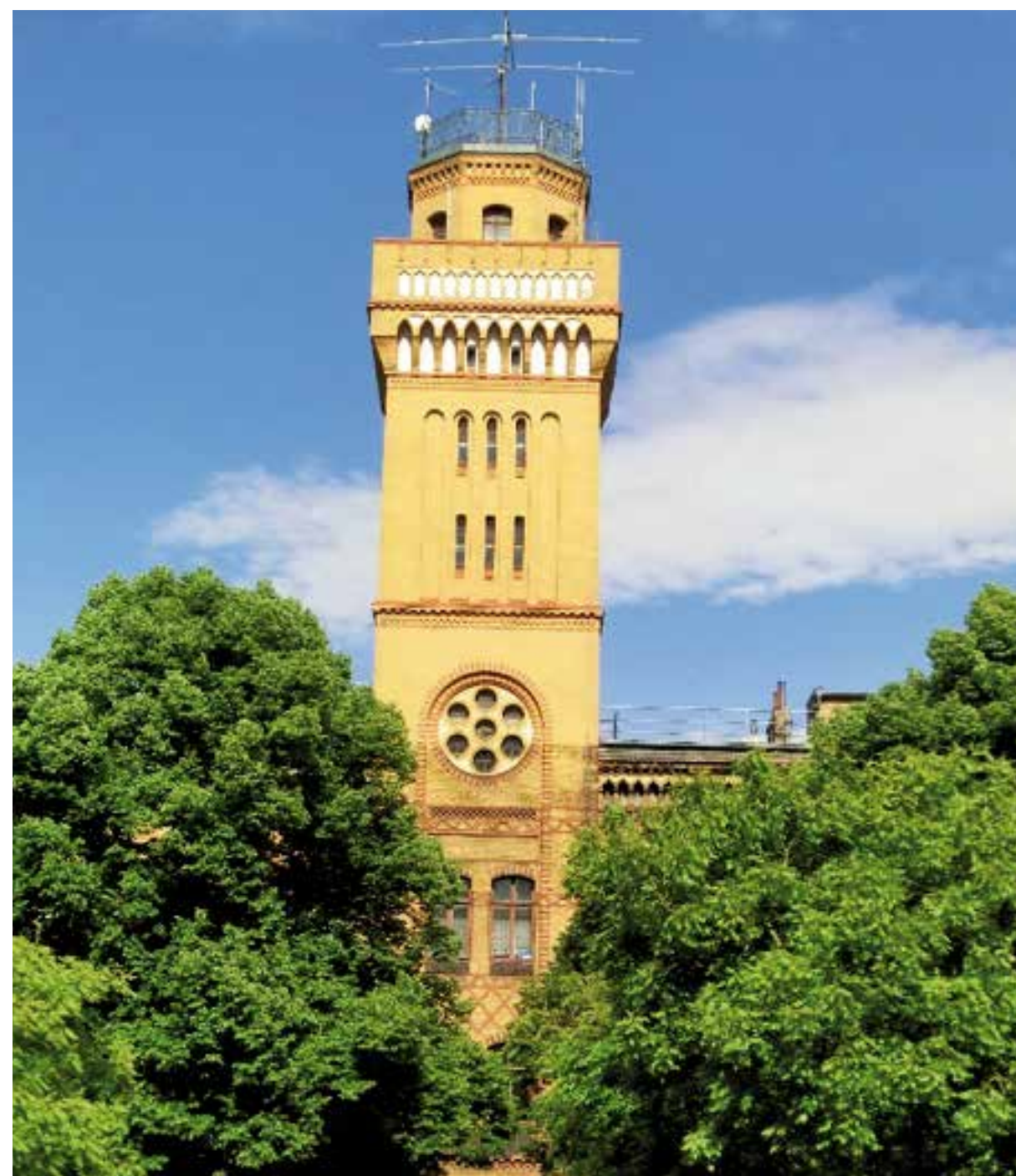
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Erich Kretschmann published in 1915 and 1917 two thorough papers in Ann. d. Physik where he defined relativity as a concept of symmetry.

Mo. 25.01.16
16:00 Uhr
Ort: H34

In Special Relativity this symmetry is given by the Lorentz (or Poincaré Group). However, in General Relativity there is no such group. What remains is the General Linear Group. In the general case there is only the identical transformation which leaves the physics invariant.

Kretschmann, at that time a high school teacher, concludes therefore that General Relativity is not a "Theory of Relativity" but an "Absolute Theory". Einstein answered in detail in Ann. d. Physik 1918. I myself got interested in both the historic dispute and in the widely unknown life of Kretschmann who was my first teacher in Theoretical Physics at Halle.



Above: The old Physics Building at Halle where Kretschmann had his office.