

45. “My Response. On the Anti-Relativity Company” [1]

[Einstein 1920f]

PUBLISHED 27 August 1920

IN: *Berliner Tageblatt*, 27 August 1920, Morgen-Ausgabe, pp. [1–2].

Under the pretentious name “Arbeitsgemeinschaft deutscher Naturforscher,” a variegated society has assembled whose provisional purpose of existence seems to be to degrade, in the eyes of nonscientists, the theory of relativity as well as me as its originator. Herr Weyland and Herr Gehrcke recently delivered a first lecture in this tenor at the Philharmonic; I myself was present. I am very well aware that both speakers are not worthy of an answer from my pen, because I have good reason to believe that motives other than the striving for truth are at the bottom of this business. (If I were a German nationalist with or without a swastika instead of a Jew with liberal international views, then . . .). I only answer because well-meaning circles have repeatedly urged me to make my opinion known. [2]

First, I want to note that today, to my knowledge, there is hardly a scientist among those who have made substantial contributions to theoretical physics who would not admit that the theory of relativity in its entirety is founded on a logical basis and is in agreement with experimental facts which to date have been reliably established. The most important theoretical physicists—namely, H. A. Lorentz, M. Planck, Sommerfeld, Laue, Born, Larmor, Eddington, Debye, Langevin, Levi-Civita—support the theory, and most of them have made valuable contributions to it. As a pronounced opponent of the theory of relativity among physicists of international reputation I would have to name only Lenard. I admire Lenard as a master of experimental physics; but he has not yet produced anything outstanding in theoretical physics, and his objections to the general theory of relativity are of such superficiality that up to now I did not think it necessary to answer them in detail. I intend to make up for this. [4]

I have been accused of running a tasteless advertising campaign for the theory of relativity. But I can say that all my life I have been a friend of well-chosen, sober words and of concise presentation. Highfalutin phrases and words give me goose bumps whether they deal with the theory of relativity or with anything else. I have [5]

often made fun of effusions that are now finally attributed to me. Besides, I am happy to let the *Herren* of the Company have their fun.

Now to the lectures. Herr Weyland, who does not seem to be an expert at all (physician? engineer? politician? I couldn't find out) has brought up nothing of substance whatsoever. He erupted with coarse invectives and base accusations. The second speaker, Herr Gehrcke, in part presented direct falsehoods, and in part tried, through a one-sided selection of distorted material, to create a false impression among uninformed laymen. The following examples may demonstrate this:

Herr Gehrcke claims that the theory of relativity would lead to solipsism, an assertion that all experts will greet as a joke. He bases this on the well-known example of the two clocks (or twins) where *one* of them makes a round trip with respect to one inertial system; the other does not. He claims that in this case the theory would lead to the truly nonsensical result that, of two clocks resting side by side, each one is slow relative to the other—even though the best experts of the theory have repeatedly, orally and in writing, disproven his statement. I can see this only as a deliberate attempt to misinform the lay public.

Furthermore, Herr Gehrcke alludes to the objections made by Herr Lenard, which many relate to examples of mechanics from everyday life. These are already baseless due to my general proof that the statements of the general theory of relativity, in first approximation, coincide with those of classical mechanics.

What Herr Gehrcke said about the experimental confirmation of the theory is the most convincing proof for me that his goal was not to unveil true facts.

Herr Gehrcke wants to make us believe that the movement of the perihelion of Mercury could also be explained without the theory of relativity. There are two possibilities. Either one invents specialized interplanetary masses so big and distributed in such a way that a movement of the perihelion of the measured amount results. This is of course a highly unsatisfactory way out compared with the treatment in the theory of relativity, which explains the movement of the Mercury perihelion without any assumptions. The other way is to quote a paper by Gerber, who gave the correct formula for the movement of the Mercury perihelion before I did. Yet experts not only agree that Gerber's derivation is faulty from beginning to end, but also that the formula cannot be obtained as a consequence of the assumptions from which Gerber started out. The paper of Herr Gerber is, therefore, completely worthless, a miscarried and irreparable theoretical attempt. I state that the general theory of relativity provided the first real explanation of the movement of the perihelion of Mercury. I had not mentioned the Gerber paper because I was not aware of it when I wrote my paper of the movement of the Mercury perihelion; but even if I had known about it, there would have been no reason to mention it. The personal attacks which Messrs. Gehrcke and Lenard directed against me in this matter have

been judged by all experts as being quite generally unfair; I have, so far, considered it below my dignity to waste even one word on it. [14]

In his lecture, Herr Gehrcke presented the reliability of the masterfully executed English measurements of the deflection of light rays passing by the sun in a lopsided manner when he mentioned only *one* of *three* independent observation groups; namely, the one where distortions in the heliostat mirror had to produce erroneous results. He did not mention that the English astronomers themselves, in their official report, interpreted their results as a brilliant confirmation of the general theory of relativity. [15]

In matters of the redshift of spectral lines, Herr Gehrcke did not reveal that current measurements still contradict each other, and thus a final decision still cannot be made. He quoted only the witnesses *against* the existence of the line shift that the theory of relativity predicts, but he concealed that the previous results are no longer convincing, per the most recent investigations by Grebe and Bachem and also by Perot. {3} [16]

Finally, I want to note that, upon my suggestion, there will be a discussion on the theory of relativity at the *Naturforscherversammlung* [i.e., convention of natural scientists] in Nauheim. Anyone who can dare to face a scientific forum can present his objections there. [17] {4}

Seeing how the theory and its creator are slandered in such a manner in Germany will make a strange impression in foreign countries, especially with my Dutch and British colleagues H. A. Lorentz and Eddington, gentlemen who worked intensively in the field of relativity and repeatedly gave lectures on this subject matter. [18]

Translator's Notes

- {1} Here and in the following "Gehrke" has been corrected to "Gehrcke."
- {2} The original in the newspaper reads "Massen," which has been mistranscribed as "Waffen."
- {3} L. Grebe, A. Bachem, *Z. Phys.* I, 51 (1920). "Buchem" in the German text is a misprint.
- {4} "Neuheim" in the German newspaper is a misprint of "Nauheim."

46. Discussions of Lectures in Bad Nauheim

[Einstein et al. 1920]

HELD 23–24 September 1920

PUBLISHED 1 and 15 November 1920

IN: *Physikalische Zeitschrift* 21 (1920): 650–651, 662, 666–668.

Not selected for translation.