

EINSTEIN'S OPPONENTS

This detailed account of the controversy surrounding the publication of Albert Einstein's theory of relativity explores the ferocious popular and academic opposition which at one time encircled one of the most important scientific breakthroughs of the twentieth century.

Based on extensive archival research, this fascinating discourse includes a compelling and entertaining examination of the contemporary literature created by Einstein's detractors. Exploring the arguments and strategies, social contexts, and motivations of Einstein's detractors, and providing unique insights into the dynamics of scientific controversies, this book is ideal for anyone interested in the history and philosophy of physics, popular science, and the public understanding of science.

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The Public Controversy about the Theory of Relativity in the 1920s
Milena Wazeck , Translated by Geoffrey S. Koby
Frontmatter
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EINSTEIN'S OPPONENTS
The Public Controversy
about the Theory of Relativity in the 1920s

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Translator's preface: making the imaginary accessible – translating *Einstein's Opponents*

GEOFFREY S. KOBY

For a professional translator and translation scholar, translating a book is a unique opportunity to reflect in practice the knowledge and positions that one has developed by studying theory. Each book is unique in its situation, embedded in one culture yet interesting to another. The translator acts as a cultural mediator, transmitting information and attitudes across the linguistic boundary to make them accessible to target-language readers who would otherwise be unable to access the content. At the same time, every translation is simultaneously an interpretation of the source-language text. In the early nineteenth century, Friedrich Schleiermacher already offered the distinction between a domesticating practice in translation and a foreignizing practice. Similarly, work in recent years by authors such as Lawrence Venuti (2008), Mona Baker (2006), and Susan Bassnett-McGuire (2002), has highlighted the theoretical position that there cannot be only one single, definitive translation. Instead, each translator brings a unique perspective to the translation at hand. At the same time, translators must follow the “translation brief” (also referred to as translation instructions, see Nord 1991); that is, the particular specifications agreed upon between the translator and publisher – or in this case, between the translator and author. In the following, I will describe my perspective on the translation and the decisions that were reached, often in consultation with the author, to create what we defined as the translation brief: standing squarely and intentionally in the fluent, “domesticating” tradition of English language translation, this work is intended to be an accessible, readable, and factually accurate translation that simultaneously reflects the spirit of the German original.¹

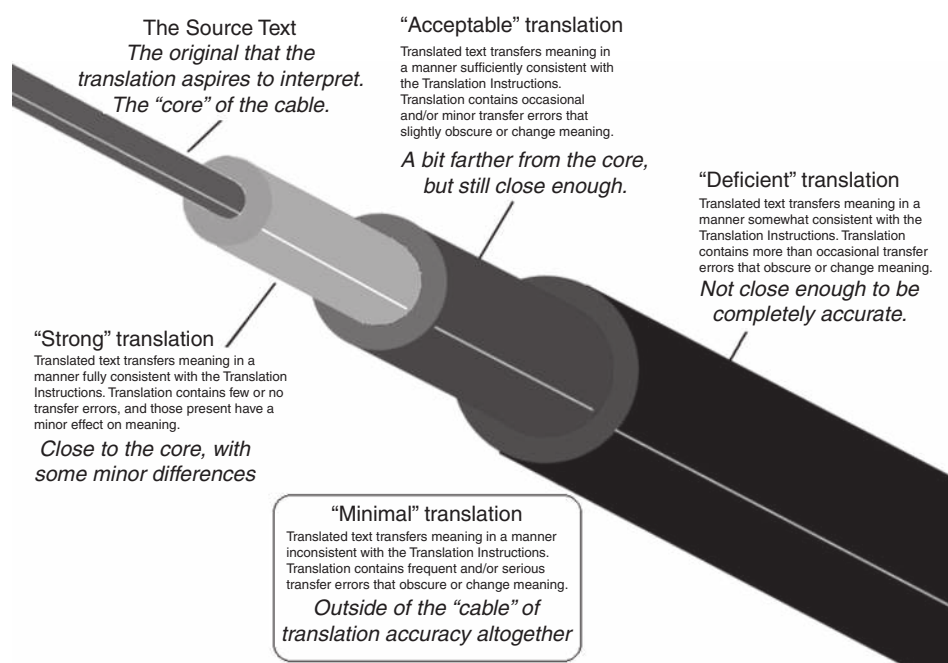
¹ The text has been slightly revised in English by the author in interaction with the translator, where the initial translation made it apparent that either clarification was necessary, or that some point needed to be expanded. In addition, the references have been updated to some extent and English sources have been used as appropriate.

As discussed above, every source text is subject to a range of possible interpretations. This leads to the question of what constitutes an “accurate” translation – a question that can only be understood within the boundaries of a particular genre of translation. Although Venuti (2008, p. 2) asserts that fiction is “the most translated genre worldwide,” I would argue that this statement needs to be modified; fiction may be the most translated genre that appears in traditional publishing venues, but non-fiction in its many varieties is much more likely to be the most translated genre. This includes both self-published documents (e.g. corporate reports and technical specifications), and documents such as contracts or training materials used internally in a large variety of multilingual organizations, along with literally any kind of document that may need to be translated for legal purposes (e.g. lawsuits). The size of the membership of professional translation associations indicates that professional translation extends far beyond non-fiction: the American Translators Association alone counts more than 11,000 members in 2013.

My conception of accuracy in non-fiction, then, can be explained using a metaphorical image of a coaxial cable (see figure). From the center outward, a coaxial cable is composed of a center core wire, a dielectric insulator, a metallic shield, and a plastic jacket. Let us assume that the message of the source text, as embodied in its wording, is represented by the central wire at the core of the cable. This original message is the guiding line that each translator follows in creating his or her translation. Given that multiple interpretations are possible for any source text, there is a range of solutions or renderings of any source text passage that would be considered by the community of professional translators to be acceptable or congruent with the intent of the source text author as embodied in the wording. The American Translators Association Certification Program recognizes four broad levels of translation accuracy in its Rubric (American Translators Association 2011): Strong, Acceptable, Deficient, and Minimal. Strong and Acceptable translations represent interpretations that contain few or no deviations or incongruities from the source text’s factual information. A deficient translation is considered to deviate sufficiently far from the range of plausible interpretations of the source text to require editing by another translator. A minimal translation deviates so strongly from the range of interpretations considered acceptable by the majority of translators that the amount of effort required to edit the translation to an acceptable level of congruity might be more than that required to simply retranslate from the beginning.

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Metaphor of translation accuracy as coaxial cable. Image © 2013 Geoffrey S. Koby.

The sheathing around the coaxial cable’s core represents this range of renderings. The interior of the cable represents translations with acceptable congruity, while still permitting a range of interpretation. One translator’s version may be located closer to the core in terms of wording or detail of meaning, while another’s may take more freedom to adapt the text or vary details for overall communicative effect – and yet still remain within the overall metaphorical cable of translational congruency with the source text. The plastic jacket of the cable represents those deficient translations that still follow the course of the cable’s core, guiding the range of acceptable interpretations closely enough to be editable. Outside the cable sheathing is anything that is considered either a translation error or “not a translation.” Translation errors are defined as those occurring in a document that purports to be a translation of a given original. In this case, translation errors are those renderings in a target text that suffer from a lack of congruity with the source text meaning, as interpreted by a preponderance of expert translators in that language pair. Translation errors range from minor incongruencies such as wording in the target text that, while maintaining the fundamental imagery of the source wording, does not accurately reflect its nuances, implications, or typical collocations (e.g. translating *he is trying to do X*

as *he is endeavored to do X*), to target-text images that are fundamentally different from those of the source text (e.g. translating German *Haus* as *house* where in fact *company* is the source-text meaning). Translation errors may also extend as far as multiple incongruities with the source text message such that, in the judgment of expert translators, there is a fundamental disconnect between the range of possible interpretations of the source text message and such a translation.

This book is situated squarely in the genre of non-fiction, specifically history. Therefore, the kind of accuracy of factual information discussed above is one of the primary goals of the translation, along with readability and fluency, while preserving and explicating those features of the German culture and the period under discussion that differ from the expectations of the English-speaking audience. This translation brief was used as a guiding principle by both the translator and the author in creating the most accurate translation possible – a goal that was significantly enhanced by the fortunate circumstance that, when ambiguities or multiple possible interpretations were discovered in the source text, it was possible to discuss with the author what her intentions were.

Einstein's Opponents is a book on the history of science. It focuses on those individuals – scientists, philosophers, and non-scientists with an interest in science – who opposed Einstein's theories. Whatever the reasons for their opposition, these individuals frequently held a common opinion that the modern science of the day (i.e. relativity science) as conducted by the scientists in the established institutions, was incorrect and that the scientists were (deliberately or unconsciously) suppressing the “truth” that could be found outside of the institutions.

This idea of the unreasonableness of “establishment sciences” has not changed in 100 years. It has even become a trope in the genre of science fiction, particularly science fiction humor, where the character of the “opponent of established science” has become stereotypical. This is exemplified in the fiction story *Babel* by Steven Utley, which appeared in 2004 in a prominent science fiction magazine. Utley has his characters (all of whom oppose institutionalized science) use the term “establishment scientists” in contrast with “faith-based scientists” and others. In the story, there are multiple competing “non-establishment” groups with fictional names such as the “Advocates for Biblical Creation,” the “Institute for Extraterrestrialist Studies,” the “Advocates for Intelligent Design.” One of Utley's characters says, “By scientists, however, I mean *true* scientists, as opposed to members of the conservative uniformitarian-evolutionist establishment... That's quite a mouthful, isn't it? And I didn't even get in ‘relativist’ and ‘indeterminist.’” Here, “The true scientist formulates a sound theory and then amasses the incontrovertible evidence that supports it.” In the fictional world, a new discovery has been made and, according to the non-scientist character, “Astronomical observations will corroborate the work done in Newtonian optics, proving that the Universe is not only much

younger, but much smaller than establishment science says. Then, goodbye Einstein! Relativity will join evolution in the same unmarked mass grave." This sentiment could easily have been expressed by some of the non-fictional characters in *Einstein's Opponents*.

In this translation, because the topic is the history of science, the general approach is to assume that the reader is interested in the factual breakdown of the events and in the polemics of the writers of the time who expressed their resistance to the idea of relativity. Now, resistance to the idea of relativity in science is not particularly German; therefore the translation is crafted to communicate the tone and attitude of the original writer quoted in the text *as if they were fluently expressing their ideas in English*. The translation does not attempt to make the translation sound "foreign" except in cases where cultural differences require wording or expressions that are not typical for English.

Technology contributing to accuracy

Computer-assisted translation software was used to create the translation. The specific package used was SDL Trados Studio 2011 Freelance™ as a translation environment with translation memory, along with the package's terminology management application, MultiTerm™. The advantages of using such a translation environment are many; first, the translation memory feature stores each sentence as it is translated, allowing similar sentences to be reused and adapted. Second, the translation memory can be searched using a concordance feature for words or phrases that have previously been translated. Both of these features enhance consistency across longer stretches of text and within the entire book. Third, terms, phrases, and names that recur frequently can be added to the terminology management application to ensure that they are translated identically at each occurrence. Using these features prevents drift in the use of similar words or terms across the period of time it takes to translate an entire book. In addition, they enhance translation speed by serving as an aid to memory, thus obviating the need to repeat searching for terminology that fades in the translator's mind over time.

Names and cultural phenomena

This book includes a number of names and cultural phenomena specific to the German cultural environment that are explained here for the interested reader.

Spengler; Oswald. In the discussion of Rudolf Mewes' work *Kriegs- und Geistesperioden im Völkerleben und Verkündigung des nächsten Weltkrieges*, the source text merely uses the adjective *spenglerschem*. The German reader recognizes this as a name used as an adjective referring to the work of Oswald Manuel Arnold

Gottfried Spengler (1880–1936), a German historian and philosopher best known for his large book *The Decline of the West* (*Der Untergang des Abendlandes*), published in 1918 and 1922.

Kneipp. The text refers to naturopathy, including the Kneipp movement, and also frequently refers to the “hydropathic Kneipp physician” Franz Xaver Kleinschrod as a prominent universal riddle solver. Thus a brief explanation of the Kneipp movement is in order. This alternative health movement was founded in the late 1800s by Sebastian Kneipp (1821–1897) and continues to be well known in Germany. It is best known for the use of water treatments such as “hot and cold rinses, knee and thigh rinses, cold rinses, cold footbaths (15–20 seconds) and water stepping.” According to www.kneipp.com, “During his life, Kneipp used knowledge of the healing powers of water and medicinal plants and combined them with his own insights to create a systematic teaching. Thus the priest and naturopath created a visionary life philosophy that sees man going about his daily habits and routines and his natural environment as an inseparable and balanced entity. He considered the elements of water, plants, exercise, diet and balance to be closely linked. The name Kneipp not only stands for scientifically based naturopathic products and treatments, but also for a holistic life philosophy.”

Skeptron. The *skeptron* or ancient Greek scepter was a long staff which was a symbol of authority, sometimes understood to exemplify the idea “...that authority comes to language from outside, a fact concretely exemplified by the *skeptron* that, in Homer, is passed to the orator who is about to speak” (Bourdieu 1999, p. 109).

Semi-Kürschner. “*Sigilla Veri*, a very rare encyclopaedic work of anti-Semitism, was compiled by Philipp Stauff, who also produced a reference work called *Semi-Kürschner*, the title referring to Joseph Kürschner’s annual German Literary Calendar, which was known as the *Kürschner*. The ‘Semi’ in the title is supposed to refer to ‘Semites’, the *SemiKürschner* being strenuously anti-Semitic” (Gale Cengage Learning 2013, p. 2).

Quotes and idioms

Most of the quotes in this book come from unpublished letters or from works in German that have never been translated. In these cases, the quotes are translated with the intent of expressing the personality of the writer as expressed in the text. However, there are four cases in which it was necessary to refer to published sources in order to link to the tradition as embodied therein. Chronologically, the oldest quotes come from Isaac Newton. Rather than re-translate a quote that was originally in Latin and translated into German, I referred back to the early published translation of *Philosophia naturalis principia mathematica* into English by Andrew Motte (Newton 1729).

The second case of quoting deals with the issue of how to refer to Kantian philosophy. In order to maintain consistency with existing Kant scholarship, the Kantian terms in this text are all taken from Waibl's *Dictionary of Philosophical Terms* (2011).

The final two cases are literary quotes, one from Goethe and one from Schiller, which are cited by individuals quoted in this book. In each case, the quotes are widely known in Germany and are cited without reference to the work in question. The Goethe quote, *Mir graut vor dir!* is cited in a longer quote from Franz Kleinschrod in Chapter 1 and comes from Goethe's *Faust*, where the character Margarethe fears Heinrich (Faust) due to his pact with the devil. In this case, the challenge was selecting from among the published translations of this widely known work. Four early to more recent translations are available on the Internet. Given the time period that this book discusses, it seemed reasonable to choose a translation more contemporary to that period. The following choices were available:

- S.T. Coleridge, *Henry, now you make me tremble*. (1821)
- Charles T. Brooks, *Henry! I dread to look on thee*. (1856)
- Bayard Taylor, *Henry! I shudder to think of thee*. (1890)
- George Madison Priest, *Henry! I shrink from you!* (1932)

The choice used, Bayard Taylor's translation, seemed to best fit both in terms of the time period and the preceding context of Kleinschrod's words, specifically the immediately preceding ... *a terror and horror of this humanity seizes us*.

In Chapter 4, Ernst Gehrcke is quoted using a line from Schiller's 1796 play *Fiesco* to express his attitude towards Paul Weyland in a longer quote about the Philharmonic lectures. However, like many popularly-known phrases, the Schiller quote is actually only a near-quote. The original German is *Der Mohr hat seine Arbeit gethan, der Mohr kann gehen*, which translates as *The Moor has done his work, the Moor may go*. Gehrcke, however, writes *Der Mohr hat seine Schuldigkeit getan*. Thus it was necessary to modify the quote as well, to *The Moor has done his duty*.

Terminology

The general approach to terminology that I have taken in this translation is to make it accessible to non-German speakers. Any concepts that are unique to the German culture are explicited. Titles (except journals) are translated, for two reasons: first, to allow non-German speakers to follow the line of argument – the titles of many works become part of the narrative; and second, to give non-German speakers access to the meaning of the reference works, so that they may consider using them in their own research. (Note that titles of Einstein's own works are taken from

published translations where available; otherwise, they are taken from the most commonly used, already existing, reasonable translation found in sources such as the World Wide Web.)

Challenges

Four terms presented challenges in the translation, requiring deliberation and discussion with the author and, finally, a decision. In all four cases, the focus was kept on the translation brief of clarity and comprehensibility. These terms are *Welträtsellöser* (*world riddle solver*), *Weltanschauung* (*world view*), *Grundsätzlichkeit* (*categorical nature*), and *Wissenschaftlichkeit* (*scientific approach/scientific nature/scientific claims*). The challenge in the first two terms was to choose between competing terms and arrive at one that was transparent and acceptable to both author and translator, while remaining in the traditional usage of the time period and the discipline of the history of science. For the latter two terms, the challenge is found in their nature as the German words cover a wide range of meanings.

The initial proposed translation for *Welträtsellöser* was *universal mystery solver*. Based on a modern understanding of the word *Rätsel* (*riddle, puzzle, mystery*) and the idea of *Welträtsel* being those thorny problems of origins that have mystified mankind for centuries, this solution seemed at first reasonable. However, the context of the early 1900s rendered this impossible. The tradition at the time, including some published works, used the term *world riddle*, so the translation follows this practice; if the term were newly coined, the translator would have selected the initial solution. Incidentally, one of the English language reviews of the German original, *Einsteins Gegner*, avoids this issue by using the German term: ...*those that had found their own private solution to the riddles of the universe, based on their own newly found principles; in German, the Welträtsellöser* (van Dongen 2010, p. 78). However, the mandate of clarity in the translation brief for this translation precluded the use of German terms, no matter how clearly defined, unless absolutely necessary.

This also applies to the second challenge, *Weltanschauung*. Of course, we are perfectly aware that *Weltanschauung* has been borrowed into English. However, it is well known that words, once borrowed, take on a life of their own in the borrowing language.² Thus the English *Weltanschauung* has a particular meaning that does not coincide with the German *Weltanschauung*, which is broader. In addition, the text uses the adjectival form *weltanschaulich*, which English does not have. The initial proposed solution was *ideology/ideological*, which seemed neat and easy. However,

² For instance, the English adjective *handy* has been recently borrowed into German, where it has become a noun meaning *cellular telephone*. Germans are puzzled when they use the word in English and are not understood.

discussions with the author focused on the fact that *ideology* is a narrower term than *Weltanschauung*, which encompasses more than just a political or social ideology; we agreed on *world view* as a general solution to this issue, where it is understood to encompass both ideology and a broader conception by an individual of the world as a whole. This did cause challenges for the translator, as there is no neatly corresponding adjective – *worldviewical* simply wouldn't work – so the adjectival uses are adapted on a case-by-case basis.

The latter two challenges are both terms that use the German endings *–lichkeit*, which break down into *–lich* (*–ly*) and *–keit* (*–ness*). Thus *–lichkeit* can roughly be translated as *–ly-ness*, which unfortunately is not an acceptable form in English. Thus *Grundsätzlichkeit* could be crudely translated as *fundamental-ly-ness* – a coinage that, in addition to suffering from ugliness, is intransparent to the reader. The translation *categorical nature* was arrived at using the following thought process. The dictionary meaning of *Grundsätzlichkeit* is *fundamental nature*, but that does not work well in the collocation *Vehemenz und Grundsätzlichkeit*. Therefore, working from *grundsätzlich* (*in principle, absolutely, fundamentally*), but not wanting to call them *fundamentalists*, the translation chosen (or derived) was *categorical nature* – by evolution from the term *fundamental* to its synonym *absolute* to *categorical*. Similarly, *Wissenschaftlichkeit* could be crudely rendered as *scientific-ly-ness*, where the dictionary meaning is *scientific nature* or *academic nature* depending on context. In the positive sense, it is sometimes rendered as *scientific claims*, while in the negative, if a paper were to lack *Wissenschaftlichkeit*, it would fail to have a *scientific approach*. Thus this term was rendered variously depending on context.

Word play

One of the issues in translating any language is how to handle plays on words, puns, and the like. While humor may sometimes be lost in translation, the general approach here is to show all of the meanings embedded in a German word or phrase to the extent possible. For instance, because of the way German words are derived, there are often roots in German that can be used variously as nouns, verbs, adjectives, etc., which permit very vivid wordplay using these roots. In every instance I have endeavored to transmit the flavor of the German wordplay. An example from the text is the sentence *Der den Raum oder die Stofflosigkeit überall erfüllende stofflose Stoff, genannt Weltäther, ist ein unbegreiflicher Begriff, und alle Lehren, welche auf ihm beruhen, sind genau ebenso unvollkommen und trügerisch, wie die Grundlage*.³ Here, the wordplay revolves around the two basic roots *Stoff*

³ “The immaterial matter filling space or materiallessness everywhere, which is called universal ether, is an inconceivable concept, and all theories that are based on it are precisely as imperfect and deceptive as their basis.”

(*matter*) and *Begriff* (concept). *Stoff* is represented in this sentence by the words *Stofflosigkeit* (matter-less-ness or material-less-ness), *stofflos* (material-less or immaterial), and *Stoff* (matter). *Begriff*, whose root *greif-/griff-* is related to the English word *grasp*, means *that which is grasped*. In this sentence, it shows up in the phrase *un-begreif-licher Begriff*, literally *un-grasp-able thing that is grasped* – or as I rendered it in English, the *inconceivable concept*. Two other examples also illustrate this point. One is the title of a newspaper article, *Die flüchtige Relativität*, which I have rendered as *The flee(t)ing relativity*. The word *flüchtig* can mean either *fleeing* or *fleeting*, and the word play is, I hope, neatly expressed with the parenthetical letter. The last example involves a visual picture in German that had to be converted for the English audience. The author points out that *Bereits der Begriff »Gleichzeitigkeit« beinhalte die absolute Gleichzeitigkeit, so wie der Begriff Schimmel ein weißes Pferd beinhalte*.⁴ The problematic word here is *Schimmel*, which in German means a *white horse*. Since English lacks such a word, an over-literally close translation would read *the term "white horse" contains the idea of a white horse*, which is clearly circular and nonsensical. I therefore chose the word *stallion*, which contains the idea of a male horse in order to preserve both the equine metaphor and the idea of words that include concepts, without confusing the reader.

Another wordplay issue that occurred in a few passages was the *Verdeutschung* (*Germanizing*) of ideas that were expressed in what the German language considers a foreign word, i.e. a word not composed of German linguistic elements. The German word *Relativität* (*relativity*) itself is etymologically foreign to the German language, despite the fact that the word *relativ* is relatively widely used. Thus there was discussion in the press of replacing *relativity theory* with a German compound word – *Bezügigkeitsanschauungstheorie*⁵ – which, as a translation of *relativity theory*, could obviously be translated right back into English with that term; but in doing so one would lose the point that the Germans who were coining this term were struggling to represent the idea in comprehensible terms in their own language.

A similar phenomenon occurred with the German word-formation element *empor-* (*upward*), one example being in Willy Schlüter's 1919 book *Empor-Menschlichung* (*Empormenschlichung*). *Einführung in das deutsche Tat-Denken, sowie Deutsches Tat-Denken* (*Tatdenken*). The challenge here is translating a title (much less a text!) that is both largely incomprehensible and simultaneously plays with the compounding possibilities of the German language. It can be roughly translated as *Upwardly-Humanizing* (*Upwardlyhumanizing*). *Introduction to Germanic Deed-Thinking, as well as German Deed-Thinking* (*Deedthinking*), which I hope transmits to the reader

⁴ "The term 'simultaneity' itself was said to already contain absolute simultaneity, just as the term stallion contains the idea of a male horse."

⁵ Rendered in Chapter 2 as "relational observation theory."

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the idea that the German title is largely incomprehensible and incoherent.⁶ Despite this opacity, however, this terminology also had an influence that was reflected in the press, as quoted on p. 225, where *Empormenschlichungsdeutschum* is translated as *upwardly humanizing Germanness* (in opposition to *progress Jewry* and *obtrusive Jewry*), while *emporlügen* (literally *upwardly lying*) required a phrasal interpretation: ... *to lie ... in order to elevate*.

Conclusion

The act of translating a book is a complex undertaking, comprising interaction with the text, the subject matter of the text, the foreign culture, the translation brief, and the translator's interpretation of the text in the act of embedding it into the context of other English language texts. In this case, fortunately, it was also possible to interact with the author, which I believe has led to a translation that is clear, readable, and useful to its English language readers. It now goes forth from the translator to find its way in the world on its own. May it be as effective in English as it was in German.

Kent, Ohio
 July, 2013

Bibliography

- American Translators Association. (2011). *Rubric for Grading. Version 2011*. www.atanet.org/certification/aboutexams_rubric.pdf.
- American Translators Association. (2013). *About Us: History*. www.atanet.org/aboutus/history.php.
- Baker, Mona. (2006). *Translation and conflict: a narrative account*. London & New York: Routledge.
- Bassnett-McGuire, Susan. (2002). *Translation Studies*. 3rd edn. London & New York: Routledge.
- Bourdieu, Pierre. (1999). *Language and Symbolic Power*, ed. John Thompson, trans. Gino Raymond and Matthew Adamson. Cambridge, MA: Harvard University Press.
- Gale Cengage Learning. (2013). *Testaments to the Holocaust: Propaganda Materials*. www.galeuk.com/testaments/pdfs/Testaments%20to%20the%20Holocaust%20Content%20Propaganda%20Materials.pdf.
- Goethe, Johann Wolfgang von. (2007 [1821]). *Faustus*, trans. Samuel Taylor Coleridge; edited by Frederick Burwick, and James C. McKusick. Oxford: Oxford University Press.

⁶ Graf 2008, p. 279 found him similarly opaque: "In unverständlichen, von höchstem Identifizierungsrausch geprägten Texten beschwor Schlüter den Gedanken, dass alles Denken Tat und jede Tat Denken sei. Die Verbreitung seiner Lehre sollte letztlich zu einer 'Empörtüchtigung', 'Emporgeistigung' und 'Empormenschlichung' der Massen führen." ["In incomprehensible texts characterized by the greatest possible intoxication of identification, Schlüter conjured up the thought that all thinking would be deeds and that every deed would be thinking. The dissemination of his theory was ultimately intended to lead to an 'upward competencizing', 'upward intellectualizing' and 'upward humanizing' of the masses."]

- Goethe, Johann Wolfgang von. (1856). *Faust: a tragedy*, trans. and notes by Charles T. Brooks. Boston: Ticknor and Fields.
- Goethe, Johann Wolfgang von. (2005 [1890]). *Faust*, trans. Bayard Taylor. State College, PA: Penn State Electronic Classics Series. www2.hn.psu.edu/faculty/jmanis/goethe/Goethe-Faust.pdf
- Goethe, Johann Wolfgang von. (1932). *Faust*, trans. George Madison Priest. New York: Covici, Friede.
- Graf, Rüdiger. (2008). *Die Zukunft der Weimarer Republik: Krisen und Zukunftsaneignungen in Deutschland, 1918–1933* [*The future of the Weimar Republic: Crises and Appropriations of the Future in Germany, 1918–1933*]. Munich: Oldenbourg.
- Newton, Isaac. (1729). *The Mathematical Principles of Natural Philosophy*, trans. Andrew Motte. [www.en.wikisource.org/wiki/The_Mathematical_Principles_of_Natural_Philosophy_\(1729\)](http://www.en.wikisource.org/wiki/The_Mathematical_Principles_of_Natural_Philosophy_(1729))
- Nord, Christiane. (1991). *Text analysis in translation: Theory, methodology, and didactic application of a model for translation-oriented text analysis*, 1st edn. (C. Nord & P. Sparrow, trans.). Amsterdam: Rodopi.
- Schiller, Friedrich. (1796). *Fiesco; or the Genoese Conspiracy: a Tragedy*, trans. Georg Heinrich Noehden and John Stoddart.
- Schleiermacher, Friedrich. (2004). On the different methods of translating, trans. S. Bernofsky, in *The Translation Studies Reader*, ed. Lawrence Venuti, 2nd edn. London/New York: Routledge, 44–63.
- Schlüter, Willy. (1919). *Empor-Menschlichung (Empormenschlichung). Einführung in das deutsche Tat-Denken, sowie Deutsches Tat-Denken (Tatdenken)* [*Upwardly-Humanizing (Upwardlyhumanizing). Introduction to Germanic Deed-Thinking, as well as German Deed-Thinking (Deedthinking)*], 1st edn., Dresden Laube.
- Utle, Steven. (2004). Babel. *Analog Science Fiction and Fact*, **124**(3), 75–81.
- van Dongen, Jeroen. (2010). On Einstein's Opponents, and Other Crackpots. Essay review of "Einstein's Gegner. Die öffentliche Kontroverse um die Relativitätstheorie in den 1920er Jahren" by Milena Wazeck. *Studies in History and Philosophy of Modern Physics*, **41**, 78–80.
- Venuti, Lawrence. (2008). *The Translator's Invisibility*, 2nd edn. London/New York: Routledge.
- Waibl, Elmar. (2011). *Dictionary of Philosophical Terms, German–English, English–German/ Wörterbuch philosophischer Fachbegriffe, Deutsch–Englisch, Englisch–Deutsch*. Vienna: Facultas. Also available online: www.uibk.ac.at/philosophie/institut/mitarbeiter/waibl_ordner/philwoeb/philwb.htm.

Preface

I spent the summer of 2002 in an archive room with no windows. Stored there, in moving boxes and banana crates, were the papers of the physicist and Einstein opponent Ernst Gehrcke, which had just been acquired by the Max Planck Institute for the History of Science (whose German abbreviation is MPIWG). My initial sorting of the material was followed by countless weekends of reading. Fiery pamphlets against the theory of relativity accompanied by agitative correspondence and solemnly worded alternative universal theories set against modern physics cast light in this small room on a shadowy world at the beginning of the twentieth century. Who were all these people who protested so vehemently against Einstein's theory? What provoked them to consider one of the most important physics theories of the twentieth century to be one of the greatest threats of their time? In order to answer these questions, this book brings together two strands of research where, until now, few connections have been apparent – the history of the popularization of science and the history of modern physics. It will show that the critics of the theory of relativity came from a non-academic social background whose roots extend farther back than the 1920s – in fact their roots developed in the course of the expansion of the sciences and their popularization in the nineteenth century.

In order to analyze the historical phenomenon of non-academic criticism of the theory of relativity, a discourse analysis approach was applied to an area that has hardly been touched by historical discourse analysis, namely the history of modern physics. The heated public controversy about Einstein's theory of relativity is understood here as a discourse of marginalized knowledge and thus subjected to a new analytical perspective that is, I hope, instructive to both the history of science and the sociology of knowledge.

This book developed from an interest in the role of science for the concept of reality in modern societies that I developed during my studies of political science. It is thanks to Jürgen Renn that I received the intellectual and institutional flexibility that was necessary for this work. Our collaboration in the context of various research

projects in his department at the Max Planck Institute for the History of Science encouraged me to understand the history of knowledge as a comprehensive research field that must also deal with bodies of knowledge that extend beyond established academic sciences. The linking of source-oriented research with theoretical reflection, as is practiced in these research projects, decisively shaped my approach to research questions.

The present work was accepted as a dissertation by the Faculty of Humanities (I) at Humboldt University of Berlin, and has been slightly revised for publication. I would like to thank Jürgen Renn and Rüdiger vom Bruch for supervising this work as first and second readers; my thanks also go to Gabriele Metzler for her stimulating third reader's report. I must also thank my colleagues at the Max Planck Institute for the History of Science, Katja Bödeker, Jochen Büttner, Peter Damerow, Lindy Divarci, Carmen Hammer, Dieter Hoffmann, Christoph Lehner, Simone Rieger, Matthias Schemmel, Matteo Valleriani, and many others, for countless helpful, encouraging, and stimulating conversations. Safia Azzouni, Katja Bödeker, Dieter Hoffmann and Matthias Schemmel were careful readers of earlier versions of this work or portions thereof. I always benefitted from their critical comments and friendly pointers. I would like to express my particular thanks to Matthias Schemmel for always being willing to clarify physics issues.

This book refers to source material that has been newly discovered in some cases. The support of the library at the Max Planck Institute for the History of Science under its director, Urs Schoepflin, made many things easier and some things possible in the first place; my heartfelt thanks go to Bianca Henn for her archival cataloging of Gehrcke's papers. Additionally, I would like to thank Ann Kenne of the Department of Special Collections of the University of St. Thomas for her help in providing archival material.

Many thanks to Simon Capelin and his team from Cambridge University Press for their help producing this book. Thanks also go to Geoffrey S. Koby for his excellent and fast translation of the manuscript from the German. The translation of this book, originally published in German in 2009, was funded by Geisteswissenschaften International – Translation Funding for Work in the Humanities and Social Sciences. I am very grateful to have received this grant. The manuscript was slightly revised for the English edition.

This book is dedicated to my sister Jana and my father Jürgen. Thank you for always being there for me.

New York,
July 2013

Abbreviations

AoN	Academy of Nations
DGTP	Deutsche Gesellschaft für technische Physik [German Society for Technical Physics]
DGWAP	Deutsche Gesellschaft für Weltätherforschung und anschauliche Physik (DGWAP) [German Society for Universal Ether Research and Comprehensible Physics]
DMB	Deutscher Monistenbund [German Monist League]
DPG	Deutsche Physikalische Gesellschaft [German Physical Society]
GDNÄ	Gesellschaft Deutscher Naturforscher und Ärzte [Society of German Natural Scientists and Physicians]
GN	Ernst Gehrcke Papers, Archival Collection, Max Planck Institute for the History of Science, Berlin
MIT	Massachusetts Institute of Technology
MPIWG	Max-Planck-Institut für Wissenschaftsgeschichte [Max Planck Institute for the History of Science]
RP	Arvid Reuter Dahl Papers, Department of Special Collections, University of St. Thomas, St. Paul, MN
SNG	Schweizerische Naturforschende Gesellschaft [Swiss Natural Science Society]