

Luke, and John, who also wrote “Unto him that hath shall be given . . .” (or near enough). An earlier letter from me (PHYSICS TODAY, October 1991, page 154) provides more detail.

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In two of his recent essays, David Mermin underscores the unreliability of human memory. In the February 2004 issue of PHYSICS TODAY (page 10), he discusses a position that Aage Peterson attributed to Niels Bohr and the conflicting views from Viktor Weisskopf and Rudolf Peierls of whether that was really Bohr’s position. A Google search attributes it to Bohr directly in over 90% of the citations. In the May issue, Mermin attributes a particular admonition to Richard Feynman, although the statement may actually have been Mermin’s own.

Memory is often—perhaps usually—unreliable. Eyewitness testimony, as Elizabeth Loftus and others have shown,^{1–4} is notoriously unreliable. Misidentifications appear to arise through a process called confabulation: When we remember only part of an incident we unconsciously look for the most likely candidate to fill the gap and provide a logically complete story. Historians are aware of the problem. Their investigations also suffer from a similar phenomenon, the Rashomon effect (from the movie), in which any incident is seen differently by the different participants. The controversy of Werner Heisenberg’s role in the German atomic program is a good example of that effect.

Perhaps the best known example of attributing statements and positions where they best fit and to the most logical people is that of Thucydides, in his history of the Peloponnesian War. Thucydides, explaining his methodology, says: “As to the speeches which were made either before or during the war, it was hard for me, and for others who reported them to me, to recollect the exact words. I have therefore put into the mouth of each speaker the sentiments proper to the occasion, expressed as I thought he would be likely to express them, while at the same time I endeavoured, as nearly as I could, to give the general purport of what was actually said.” This is what Michael Frayn did in his play *Copenhagen*. Both writers did

deliberately what is normally done unconsciously.

As to the Matthew effect, I first ran across the citation, “even from him that hath not shall be taken away,” in graduate school some 50-odd years ago in the textbook *Organic Chemistry* by Louis F. Fieser and Mary Fieser (D. C. Heath, 1944). It is, however, a comment with many applications, and I have remembered it ever since. Although I usually attribute it to Fieser and Fieser, I add the caveat that it came from the New Testament (Matthew 13:12, 25:29; Luke 19:26).

References

1. E. F. Loftus, *Eyewitness Testimony*, Harvard U. Press, Cambridge, MA (1996).
2. E. M. Borchard, *Convicting the Innocent*, Yale U. Press, New Haven, CT (1932).
3. C. R. Huff, A. Ratner, E. Sagarin, *Convicted but Innocent*, Sage, Thousand Oaks, CA (1996).
4. D. L. Schachter, ed., *Memory Distortion*, Harvard U. Press, Cambridge, MA (1995).

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I was enjoying reading David Mermin’s May 2004 Reference Frame when I found his discussion of the Matthew effect. It is amusing that his citation of Robert Merton as the originator of this concept is itself a superb example of the Matthew effect! Many of us who took elementary organic chemistry as undergraduates knew this phenomenon under the slightly different name, “Matthew’s rule,” with the chapter and verse quoted in our textbook, copyrighted in 1944.

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Mermin replies: The Matthew effect only comes into play when one possible source is overwhelmingly more distinguished than any other. Richard P. Feynman and N. David Mermin constitute a fine example. The evangelists do not. Matthew did not tower head and shoulders above his colleagues. One might argue that we should call it the Mark effect, since the Gospel of Mark was the earliest, but this would make the term “Matthew effect” a simple misattribution of priority, and not an example of the effect itself, as Douglas Brewer incorrectly maintains.

Merton and the Fiesers are another matter. While the Fiesers are overwhelmingly the more distinguished chemists, Merton is overwhelmingly the more distinguished sociologist. Since the Matthew effect is a sociological and not a chemical phenomenon, if the Fiesers really did introduce the terminology in 1944, its widespread attribution to Merton (1968) is indeed an example of the Matthew effect. I suspect that the author of *On the Shoulders of Giants* would have greatly enjoyed this delicious twist.

Hoping to learn more, I dug Fieser and Fieser out of the library. But the index was of no help in hunting down Sam Silverman’s citation, and I’m ashamed to say I lacked the patience to search for it page by page. Stephen Berry’s memory of long-ago organic chemistry classes certainly lends credence to Silverman’s claim. But the question of whether the Fiesers, as amateur sociologists, have indeed been matthewed (or matthewed, marked, lured, and johned, as Brewer would have us say) by Merton himself remains open, as far as I’m concerned. Perhaps some reader of PHYSICS TODAY can supply the missing citation.

While on the subject, I would like to report here that I received more than 40 e-mails in response to my request for evidence that Feynman had used “shut up and calculate” to characterize the Copenhagen interpretation. While these contained many delightful anecdotes and personal reminiscences, nobody could cite a Feynman text in which the phrase appears or recall ever having heard him say it or anything I judged to be very much like it.

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A Fine Point on Light’s Angular Momentum

Miles Padgett, Johannes Courtial, and Les Allen have written an interesting review of the angular momentum properties of light (PHYSICS TODAY, May 2004, page 35). In it, they note that if the spin and orbital components of a circularly polarized and helically phased beam add together to give a nonzero total angular momentum, the resulting beam can act as an optical wrench and cause a transparent particle (they must have meant a par-