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MR3530988 (Review) 01A05 26-03
Schubring, Gert (D-BLFM)
Comments on a paper on alleged misconceptions regarding the history of analysis: who has misconceptions? (English summary)
Found. Sci. **21** (2016), *no. 3,* 527–532.

This paper focuses narrowly on certain issues of historical interpretation, but it is part of a long-standing general historiographical discussion. It is generally agreed that historians of mathematics should be well versed in modern mathematics while at the same time being trained to try to understand older texts in the way they were understood by the author and readers at the time. Historians may also be willing to recognize that our current mathematical knowledge may provide insights into the mathematics of centuries ago, but are wary of being accused of taking a text out of its historical context. Thus, on one side, there are those of a more mathematical point of view, represented here by P. Błaszczyk, M. G. Katz and D. M. Sherry [Found. Sci. **18** (2013), no. 1, 43–74; MR3031794], who maintain, in the case at hand, that A. L. Cauchy had an understanding of the infinitely small that is to some degree consonant with our modern understanding. That is, we now know there are mathematically consistent ways of introducing infinitesimals and, read in the right way, we can see that Cauchy too had essentially developed such a method. Furthermore, it is maintained that this method pervades his work in analysis and Cauchy should not be regarded, as he usually is, as a precursor of the epsilon-delta approach to foundations later perfected by Dedekind and Weierstrass.

On the other side is the more historical point of view that it goes too far to say that Cauchy himself understood that he was using such methods in the way attributed to him. This latter view is represented here by Schubring, though his main purpose is to counter criticism in the above work by Błaszczyk, Katz and Sherry, who, he claims, have fundamentally misconstrued important points in his [*Conflicts between generalization, rigor, and intuition*, Sources Stud. Hist. Math. Phys. Sci., Springer, New York, 2005; MR2144499] and have overlooked other of his writings. A good part of Schubring's argument has to do with interpreting not only Cauchy but the work of Detlef Laugwitz on Cauchy, as for example in [Historia Math. **14** (1987), no. 3, 258–274; MR0909630]. Laugwitz is called on by both sides and appears somewhere in between.

Cauchy is an example of a mathematician of such stature that we may be entitled to wonder if he indeed had insights that were not fully appreciated by his contemporaries—ones that we, however, can appreciate. On the other hand, it is obvious that Cauchy did not have available modern tools and it thus becomes a delicate matter of interpreting his text in a modern light. A convincing argument for each side consists in showing that not only Cauchy's work, but its context—his own related works as well as those of others in the same field—support their point of view. This involves interpretation of keywords, style, and reasoning in the early 19th century French texts and it can be a challenge for a reader to follow modern specialists' arguments for competing views, especially if the modern English of discourse needs attentive editing as is the case in this paper. Nevertheless, it seems clear that Schubring has a basis for objecting to his treatment by Błaszczyk, Katz and Sherry. It is also clear that the argument on how to read classical historical texts will continue: Błaszczyk, Katz and Sherry along with V. Kanovei have published a rejoinder to this paper ["Controversies in the foundations of analysis: comments on Schubring's *Conflicts*", Found. Sci., posted December 24, 2015, doi:10.1007/s10699-015-9473-4]. *Albert C. Lewis*

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