THE AUTHOR REPLIES

Wildner and Hofman (1) had a fruitful drink at the Mariandl! However, I am still not convinced that Professor Georg Gaffky really wanted or even was able to send a weakly virulent culture of cholera bacilli to save von Pettenkofer’s life.

The context is important. In 1892, the Munich and Berlin schools were involved in a tough competition about who held the correct theory on cholera etiology. The Berlin school won the first two rounds. Koch had humiliated von Pettenkofer first in Hamburg and later in the committee that put together the Epidemic Law of the Reich (2, 3). When von Pettenkofer requested the cholera culture, he was adding a third round to the competition.

And he won! According to the historian Mendelsohn: “This simple self-experiment [von Pettenkofer’s ingestion of a cubic centimeter of pure cholera culture] did create a riveting fact, a fact on whose existence everyone came to agree and puzzle over, not least Robert Koch himself” (4, p. 21). Even Pasteur was shaken (4, p. 22).

Was the Berlin school prepared to lose this third round in order to save von Pettenkofer’s life? Koch was not exactly the sensitive, humane type. Gaffky was Koch’s successor at the Kaiserliches Gesundheitsamt and perhaps expected to succeed him—as he did in 1905—at the Institut für Infektionskrankheiten. The close ties of Gaffky to Koch and the reputation of bacteriology were on the line. Moreover, for Berlin, the death of von Pettenkofer after ingesting the culture was appealing, too. It would have fully discredited von Pettenkofer’s ideas and may also have saved lives by preventing new devastating cholera outbreaks like the one that had occurred in Hamburg the previous summer. If von Pettenkofer’s death was an option Koch and Gaffky would have preferred to avoid, a wise decision would have been not to send the culture, arguing that, if von Pettenkofer wanted to kill himself, he should find another means of getting the infectious agent. However, according to Kisskalt (5) and Evans (6, p. 498), Gaffky knew the purpose of the request, was convinced that a straight culture could kill the old man, and sent a culture anyway.

Is it plausible that Gaffky acted against his and Koch’s interests to save von Pettenkofer’s life? Kisskalt assumes
that Gaffky knew how to prepare a culture of weak virulence so that von Pettenkofer could play his part without dying. But Gaffky could not count on a diluted culture to be less virulent than a saturated one. Imagine that virulence genes are expressed only at low cell density; then, a diluted culture might be prime for infection. According to Rita Colwell (University of Maryland at College Park, personal communication, 2008), Gaffky would not be cognizant either that cold could switch the cholera germ into a nonculturable or dormant state. We cannot therefore rule out that Gaffky risked killing von Pettenkofer for the sake of science, and that chance, that is, the cold weather (4°C–10°C), which is typical of Munich and Berlin in the month of October, cut down the virulence of the cholera broth and miraculously saved von Pettenkofer.

Thus, while the “humane interaction” claimed by Wildner and Hofman is not impossible, it seems inconsistent with the context and protagonists of the time. Historians must provide stronger evidence than Gaffky’s (and a military physician’s) late confidences that Kisskalt’s version does not dissimulate a post hoc attempt to cover up a failed murder. How did Gaffky know von Pettenkofer’s intentions? Did he know how to prepare a weakly virulent culture? What were his options? What was the medium in which the cholera bacillus traveled from Berlin to Munich? Hopefully, answers to these questions will confirm Wildner and Hofman’s conclusion that this is a fascinating story of kindness, rather than a sordid episode in a merciless academic rivalry.

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REFERENCES

Alfredo Morabia (e-mail: alfredo.morabia@qc.cuny.edu)
From the Center for the Biology of Natural Systems, Queens College, City University of New York, Flushing, NY 11365

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