

Let's face it.

A unspecialized column by Alain Schremmer.
Mathematics Department, Community College of Philadelphia,
1700 Spring Garden Street, Philadelphia, PA 19130

There used to be a time when mathematics, while quite pure, nevertheless was a reflection—if only a platonic one—of the real world. Progress today means that we separate pure and applied mathematics, with something more than a faintly unsavory flavor attached to the applied variety.

Of course, we are living in an era of specialization: Physicists, chemists, biologists think about natural philosophy, philosophers think about what is knowledge, what is justice, what is freedom, and mathematicians think about what's left. That is, when they do happen to think. Sour grapes might indeed account for the invention of more and more generalized abstract nonsense and there does not seem to have been many thinking mathematicians since Poincaré. Not that to do mathematics does not require thinking (even if teaching mathematics doesn't), but, since Gauss, it is indecent to let one's thinking show and this might have carried over. This specialization is quite regrettable in what it has led to. Of course, the distinction between pure and applied mathematics is the least of the problems because it affects only mathematicians and therefore a small and generally unimportant part of humanity. What I would like to discuss here are some areas in which our abandonment of a generalist, unitarian, synthetic culture has affected populations at large—to the extent that we affect anyone at all.

Let us begin with the puzzling phenomenon of the so-called applications in mathematics textbooks. That these applications are sad jokes is incontrovertible but that makes the question of their perceived need all the more acute: Why do all these authors, when they come to applications, outdo themselves? So let us look at what it is precisely that these applications are supposed to accomplish.

Insert some quotes

In other words, the students are such morons that they cannot be expected to realize that mathematics is interesting of and by itself. On the other hand, I have always wondered whether this recourse to applications was not an unconscious admission on the authors' part that the rest of their book was pure, unadulterated rubbish, absolutely uncomsumable unless thickly sugar-coated. But

then, to expect that the students will be taken in by the coating is again to take them for morons. That this has had the indubitable consequence of turning off most students and even, I would argue, large numbers of prospective math majors, may or may not be deplorable. It depends on what one's vision of an ideal world is.

Which brings me back to philosophy and, more precisely, to *Mind the Gap*, a review by G. A. Cohen in the LONDON REVIEW OF BOOKS of 14 May 1992 of *Equality and Partiality* by Thomas Nagel. I find it of particular interest in these post Reagan days.

"[T]he task of political philosophy is to reconcile the opposed deliverance of two standpoints. In the personal point of view, everything gets its value from my distinctive interests, relationships and commitments. But I can also look at things impersonally, and then I realise that the interests and projects of others are just as important as mine are, that my life is no more important than anyone else's is. [...] A political system is legitimate if—and only if— it honors both truths that '1. everyone's life is equally important,' and that '2. everyone has his own life to live.' [...] There are two grounds of reasonable rejection [...]: 'Either it leaves him off too badly [...] or it demands too much of him by way of sacrifice of his interests [...]. And so, in a general way, we know what condition a legitimate society must meet, but Nagel is confident that, in our current state of understanding, we do not know how to satisfy them together.'" More precisely, "[o]ur present situation is such that 'any standards of individual conduct which try to accomodate both [personal and impartial] reasons will be either too demanding in terms of the first or not demanding enough in terms of the second.' [...] In fact, however, the status quo plays a major role in Nagel's assessment of what the rich could reasonably reject." And so, in the course of his argument, Cohen asks us to suppose "an equality in which everyone had 10, and a possible alternative [in which] most would have 5 (which is just about a decent minimum) and some would have 20 (a ratio of wealth to poverty dwarfed by what prevails in the real world). The question Cohen then asks is whether we would not "regard rejection of the equal status quo

While the above, per force, gives a very stunted idea of the review, it sets the stage for my point which is that models can themselves create problems.

Cohen was certainly aware that his models were simplistic but what he does not seem to be aware though is that his argument depends on the very nature of his models.

One difficulty with the models is that they are discrete. To make the choice between 20 and 10

one difficulty in having people accept foregoing the 20/5 model in favor of the 10 model is that it is discrete.

Another difficulty is that a model with one person at the 20 level and ninety-nine persons at the 5 level is not the same as a model with fifty persons at each level.

Brown and the "simple tax".