Tattooing the Bubble: Schrag and Longino on Science, Feminism, Education

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We owe a debt to Professor Francis Schrag. He conducts an even-tempered, coolheaded inquiry into the credentials of feminism in science. He does not descend to name calling, axe grinding, or other shrill devices from the antifeminist armory. On the whole, his conclusions are in little doubt. Concern remains about his arguments and their targets. I list my concerns now for later elaboration. First, close examination of Schrag's arguments reveals potential flaws in premises and inferences. Second, I worry that Schrag has misjudged his target, Helen Longino's main message, and inadvertently misattributed views to her. Third, I suggest that the evidence Professor Schrag so neatly marshals serves better to defend, not to attack, Longino. My fourth and last concern is with a moral specter haunting these disagreements.

On the first point, truth of premises, I mention only a nagging worry. Crucial to Schrag's first argument is the premise that, to use the underdetermination thesis, we must have two nonidentical theories either with identical observational consequences or with indistinguishable consequences. This seems untrue. Simply put, the thesis asserts that, for any scientific theory T, there is another U, incompatible with T, such that T and U agree on all possible evidence. Though stated for distinct theories, this has direct implications for individual theories: It implies that, for any theory T, one cannot, via deduction, justify T on the basis of the phenomena alone. As Schrag himself puts it, "no unique theory can be deduced from a finite set of observations."

In the matter of argument cogency, I paint in broader strokes. Schrag reasons, generally, as follows. Longino's proposals can be interpreted descriptively or prescriptively. If descriptively, they are straightforward empirical predictions that feminist virtues, if adopted, result in a feminization of science. But, argues Schrag, there is little reason to accept the prediction. If read prescriptively, Longino advances unhedged recommendations that virtues traditionally accorded successful theories be rejected for feminist alternatives. In this case, Schrag maintains that Longino's ideas undermine scientific rationality and success. Hence (Schrag's conclusion), either Longino's is a dubious causal claim, to be assessed by the virtues Longino rejects, or, understood prescriptively, "it challenges and subverts the scientific enterprise in a more radical way."

This is summary treatment, I admit. But the fallacy exposed is not its artifact. We stand under no compulsion to treat Longino's thesis as either empirical claim demanding proof or unhedged prescription. Famously, statements of value and virtue fall naturally into neither category, as ethical emotivists had to learn. To examine, anatomize, even commend a virtue is not to predict that its adoption will cause a desired state. Nor is it to prescribe its adoption, before all alternatives, come

what may. When I commend perfect honesty, for example, I do not predict scientifically that candor always yields a happy end. I am not insisting that one tell the unvarnished truth every time, no matter what. To commend is not simply to predict or to prescribe come what may. On this semantic point, virtues moral and empirical are in the same boat.

So, what is Longino up to? This is my second concern. Schrag views Longino as (a) an advocate for nontraditional criteria for theory choice, who (b) agitates for dethroning traditional criteria for the sake of her alternatives because (c) "if the context is gendered (in the sense of being structured by gendered power asymmetries), inquiry guided by these virtues is more likely to reveal it or less likely to preserve its invisibility."[1] Schrag refers to (c) as "Longino's principal claim." By my lights, all three attributions, (a), (b) and (c), are in doubt. The way I see it, Longino is not putting forward alternatives to displace traditional criteria. She does not argue that her virtues should replace traditional ones. Third, what is called Longino's "principal claim" is neither causal nor prescriptive but a partial definition of a phrase, "the aim of revealing gender." In the article at issue, Longino is not the feminist Schrag thinks she is.

I quote from Longino: "The relation of feminist theoretical virtues to the aim of revealing gender is...that if the context is gendered (in the sense of being structured by gendered power asymmetries), inquiry guided by these virtues is more likely to reveal it or less likely to preserve its invisibility" (*CNV*, 50). This is not a causal claim but a definitional explication of what it means to "aim to reveal gender" by theoretical virtues. Longino nowhere asserts that her chosen virtues are, will or are likely to achieve that aim, so defined. In her next paragraph, she writes, "I should emphasize that I am not arguing here that the virtues I have discussed so far *are* the theoretical virtues feminists should adopt. I think that such a claim needs further discussion and argument" (*CNV*, 50).

Longino's real agenda is more logical than political. The goals of her paper are two. Ultimately, she hopes to demonstrate that science is contextual, that canons of evidence are not universal across all contexts but work only in contexts of theory appraisal within research communities. Proximally, she hopes to show that, in such contexts, "traditional" virtues are no less sociopolitical than those called "feminist." To quote again, "I've argued, by comparing them with contrary theoretical virtues, that in specific research contexts the traditional virtues have a demonstrably political valence" (*CNV*, 55). Longino's two goals belong, therefore, to the logic of theory choice and not *per se* to profeminist advocacy. These goals, if attained, may lend strength to feminist positions but Longino is not here occupying those positions.

This introduces my third concern, a fear that Schrag has carried the dialectical ball across his own goal line, inadvertently aiding Longino's real agenda. In her brand of empiricism, theory evaluation is concrete and local, not abstract and global. There is no theoretical virtue applicable everywhere, independently of research context. There is no criterion of theory choice, apart from "look to the evidence," viable in all sciences. According to Longino, principles of choice adopted in one

research community, say, educational psychology, need serve no interest in, say, quantum mechanics. When we try to extend the virtues beyond individual contexts, we confront difficulties, for we have abstracted away from the concrete circumstances in which scientific choice makes sense, according to Longino. The problems Schrag raises now lend strength to her arm. For Longino might see little sense, in an astronomical context, to prefer heterogeneity over simplicity. Her answer to Schrag's question, "Or might she propose one set of virtues for astronomy and one for sociology?" is plain: Sociological contexts manifest virtues different from the astronomical. Her point is that scientists, working in context, get to decide these issues and that conceptual traps appear when virtues are torn from concrete science and handed over to abstract philosophy.

Finally, if these are not bones of contention between Schrag and Longino, what should be? I propose that debates between some feminists and their opponents over education obscure a moral need: to allow for a conception of education and the freedom to embrace it. Here is that conception. Education is real change: The gulf between ignorance and enlightenment is vast. It is continuous because it is natural and macroscopic nature abhors leaps. It is rational, governed by intrinsic norms. My worry is that contextualism and its more extreme brethren throttle this conception in the cradle. By "brethren," I mean philosophers who have diced up rational and moral assessment, along with those who use them, and sealed them into myriad, tiny bubbles from which they cannot escape to assess rationally the inhabitants of other bubbles. What are these bubbles? They can be Lyotard's language games, Foucault's discourses, Kuhn's paradigms, Longino's contexts, at times societies or cultures. All can be enlisted in "bubble theories" on which reason is relativized to one human group or another.

Bubble theories are self-refuting. To describe one is to stand outside all bubbles and to employ rational standards of description which, on the theory, cannot exist. Unfortunately, this objection is ignored by theorists who wear self-refutation as a crown. So, one must press a further point: Bubble theories are moral as well as logical errors. Ask, "What, on these theories, lies between bubbles, separating and individuating them?" Whatever it is cannot be rational but must be arational or irrational. The only path from one Kuhnian bubble to the next is revolution. As Macmillan argued, the only way into language games of learning is indoctrination. But real intellectual change can take us from one bubble to another, one paradigm, culture or language game to another. On bubble theories, such change occurs, if at all, at the mercy of arational force: revolution, indoctrination, power. It is not rational change.

Herein lies a moral danger. Contextualization erases a conception of education justly honored, along with our freedom to embrace it. If education is what its Latin name requires, a real "leading out" from banality, if it is continuous change and not a series of revolutionary jumps, if it is rational, it will not live in a bubble world. This is woefully confirmed in bubblier parts of education, where teachers, viewed as caught in one bubble, are charged with "colonizing" students, thought to inhabit another. Life in a bubble world is an educational incarceration. Drama critic John

Mason Brown once wrote, "To many people, criticism must seem like an attempt to tattoo soap bubbles." I ask that you accept Brown's challenge. Criticize! Go tattoo those bubbles! It's the only way to educate yourself.

TO THE MEMORY OF C.J.B. Macmillan (1935–1998)

1. Helen E. Longino, "Cognitive and Non-cognitive Values in Science," in *Feminism, Science and the Philosophy of Science*, ed. Lynn H. Nelson and Jack Nelson (Dordrecht: Kluwer Academic Publishers, 1996), 50. This book will be cited as C*NV* with page numbers in the text for all subsequent citations.