# George's Top 10 Sociological Observations About Theoretical Physicists

George Musser
18 May 2012


# aka You Know You're a

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# 1. All your truly great thoughts are conceived by walking

http://upload.wikimedia.org/wikipedia/commons/9/98/Sanzio_01_Plato_Aristotle.jpg; http://upload.wikimedia.org/

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# 1. All your truly great thoughts are conceived by walking (or cycling)

http://upload.wikimedia.org/wikipedia/commons/9/98/Sanzio_01_Plato_Aristotle.jpg; http://upload.wikimedia.org/

# 2. When you want to learn something, you don't take a class. You *teach* one

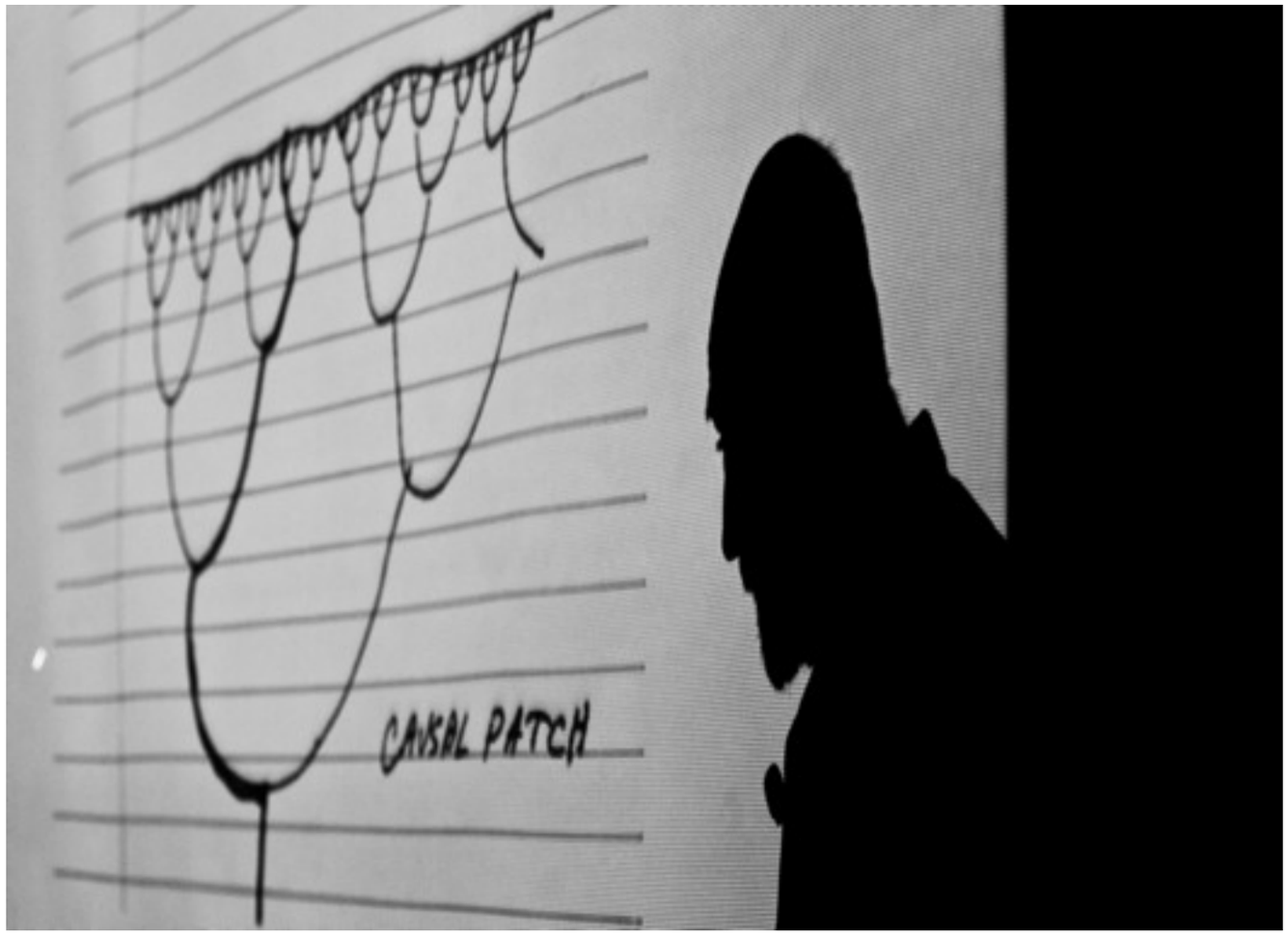

Wheeler D11, AIP Emilio Segrè Visual Archives

# 3. In fact, you can't *stop* teaching

"When I'm trying to explain what I'm doing, I learn a lot.... Many times talking to non-experts, they ask questions that no one would ask, and if you can't answer them, *you're* missing something."

courtesy Gary Smaby

# 4. If you give a talk and no one interrupts, is it really a talk?




courtesy Gary Smaby

# 5. Your job is one extended conversation

"Science rests on experiments, but science is rooted in conversations."—Heisenberg

"By academic standards, physicists are unusually social animals. Physics is sufficiently difficult that most of us find we need help to puzzle through whatever problem we're working on. But it's not just that we need help. We like visiting with colleagues in their offices to see what they're working on and perhaps offer a suggestion or two."—Blau

# 6. Your career path has been a random walk

"When I think about how I arrived at what I'm doing, it's all luck."

"There's nothing tying you to a particular subject for your entire career. Some of the most interesting developments have involved surprising connections."

"All good physicists intellectually sleep around."

# 7. You think interdisciplinarity is great… in principle

"In the history of human thinking the most fruitful developments frequently take place at those points where two different lines of thoughts meet."— Heisenberg

"People are so busy. They want to get on with what they're doing. To learn about a new approach takes some investment of time."

# 8. You're driven by curiosity, playfulness—and insecurity

"Science is not done the way I thought it was. The main epiphany about science is that you have to have luck on your side."

"I'm discouraged more than I'm encouraged. I wonder whether I should spend my life doing this."

# 8. You're driven by curiosity, playfulness—and insecurity

"There wasn't a lot of encouragement. It was an atmosphere where the students felt very intimidated.... You're looking around and thinking, can all these people make it?"

"A European postdoc at SLAC observed to me that many American postdocs simply don't ask questions—they seem to feel that they might come across as uninformed or even stupid if they did."—Traweek

# 9. Your professional and personal lives blur together

"We had a beer; we skiied. If X had been disgusting, it might have influenced whether I went into that field. I don't want to go into a field where people are so unpleasant.... The social aspect was very important."

"To keep a field friendly, you need enough ideas. Once a field gets saturated, people need to defend the few ideas they have, and there will be priority and ego conflicts. It's easier to be friendly when you have enough to share."

# 10. Physics is hard, even for you

the ONION

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## National Science Foundation: Science Hard

INDIANAPOLIS—The National Science Foundation's annual symposium concluded Monday, with the 1,300 scientists in attendance reaching the consensus that science is hard.

"For centuries, we have embraced the pursuit of scientific knowledge as one of the noblest and worthiest of human endeavors, one leading to the enrichment of mankind both today and for future generations," said keynote speaker and NSF chairman Louis Farias. "However, a breakthrough discovery is challenging our long-held perceptions about our discipline—the discovery that science is really, really hard."

"My area of expertise is the totally impossible science of particle physics," Farias continued, "but, indeed, this newly

see SCIENCE, page 5

Right: Farias explains the NSF findings.


http://www.theonion.com/articles/national-science-foundation-science-hard,1405/

# 10. Physics is hard, even for you

"I think, for some people, you think you're joining a priesthood or some erudite group. Maybe, before you get into it, it can appear like that."

"You learn quickly as a graduate student that no one understands the talks. Physicists have difficulty expressing their ideas even to one another."

"It's hard for *us*. I can't imagine what it must be like for you."

# Some Questions

1. How have you translated Big Questions into Things I Can Actually Get Done on My Sabbatical?

2. What do you hope to have taken away from this workshop?

3. What balance should science journalists strike between the process and the content of science?

4. How can the freewheeling, creative discussions at KITP workshops be encouraged more broadly?