NATURALLY OBSESSED: THE MAKING OF A SCIENTIST

New York Academy of Science - remarks by the panel

Date: February 28, 2009
Program: A screening and salon: "The State of Scientific Training in the U.S."
Organization: program planned by NYAS staff, Kiryn Haslinger and Adrienne Burke
Moderator, Garrick Utley, broadcast journalist; Dr. James Watson, Cold Spring Harbor Laboratory; Dr. Toni Hoover, Pfizer Inc.; Dr. Andrey Pisarev, SUNY Downstate Medical Center

Attendees: about 60, by special invitation
Discussion highlights from remarks by Ellis Rubinstein, President, New York Academy of Science:
Who's braver? Somebody who goes into science or somebody that allows their work to be filmed? For those of us who have had careers trying to convey the challenge and the excitement and the importance of science, these things are invaluable. There are so few of them. We need our young people to see role models, to see the excitement and not just the money one could make. We are in an environment now where science and technology has never been more important. .

From remarks by Garrick Utley
What we want to do is talk about science, what's happening or what will be happening to the pipeline, the quantity of young scientists. How are we going to develop them, nurture them, have them? Where are they going to be coming from? Where is the support for them going to be coming from?

From remarks by James Watson
Today, the main question is whether you can get a job afterwards. My worry was, was I bright enough? Would I be able to solve a problem? I worried whether I would ever have an idea. The problems today are much harder. People are trying to do much more difficult things, and with unknown competition. When I was young, you knew all your competition. Now, there are 500 graduate students in Beijing solving crystal structures. We were scared. Would we rank with the great people? And now, it's can I get a job? So we have to have some imagination because we need to see where the future of our country is. It's only in the generation of knowledge.

From remarks by Toni Hoover
In Pfizer laboratories the constant cross-fertilization of more experienced scientists with young scientists increases the diversity of the scientific pursuits that we're embarking upon. We also have a way to link with science all over the world; it's become a very global pursuit.
There are certain types of scientists and scientific competencies that we need more of now and in the future and I'm not sure if we've identified a way to say this is where we are going, that we need these types of skills sets, and these types of people answering these types of questions. That's obviously not the usual type of scientific pursuit, where you go where the science leads you. Rather we're going to need science to resolve certain types of problems. What we need more of is to grow the type of scientific talent that we think is required.

From remarks by Andre Pisarev
You will find a lot of smart people leave academia science and go to business

Garrick Utley
It's not just in science; it's in everything, the impact of globalization. What is going to be the impact on this, the sheer quantity as well as the quality on scientific research? On how information is being shared, on what sometimes has been called the revolving door of scientists, just moving around, not only their information but they themselves moving from country to country much more easily, visa problems notwithstanding? What do you see happening in this quantitative increase of work?

James Watson.
I had sort of a rule in my book which was, never go into a field where you have more than three competitors. Now, you've got to have the courage to go to the frontier and do something not obvious to other people. When I was doing it, most people went for obvious things. You can't win a horse race when you are one of 20 horses. The odds are against you, so you try and find a field with only a couple of people who really are good.
What worries me is that the reward system isn't very good now -- they just don't pay enough. So we are being forced into being nice to other people, and that's a terrible thing to do when you are young. You've got to find yourself when you are young. Now you have to be nice to each other at seminars. We were brutal. And that toughens you. Science is tough, we shouldn't kid ourselves that it's not. We have to help people survive in a tough world.

Toni Hoover
Pfizer is doing a lot more collaboration with academic institutions and not building a lot of new laboratories. We are working more virtually and linking up with research institutions, leasing laboratory space, for example, in Shanghai. We have laboratories in Sandwich, U.K., outside of London, in England and then we have our major R&D laboratory in Groton, New London, Connecticut. And then we have a major laboratory in St. Louis and in La Jolla, California. We are a global organization so we go where the science is. We consider ourselves in a war for talent with our competitors and we are looking for the best talent from around the world.

Andre Pisarev
People say that things have changed, but that right now people just trying to get some experience and go back to their own countries. The French, Chinese, they jump back after getting experience. That means that they can find much attractive conditions there in terms of salary than they can in the United States.

Garrick Utley
What do you think should be done to maintain this "competitive advantage" or edge the United States has long enjoyed, as well as the place where people come for training and hopefully stay on? What do you think the United States really needs to do? How much of this is a function of money, funding? And how much of this is something in the culture or just the changing dynamics of the world we live in today?
Andre Pisarev. I'm sure the money is one thing. But not only the money. In the Soviet Union period, professionals were the most prestigious people in the country. They had good salaries, very high, great respect from society. They had government support and many, many advantages. And that really stimulates you to work. But right now in Russia, if you are a

scientist, people laugh at you. You cannot support your family, you struggle with your life, you have all these obligations. You stop thinking about science at all.

Garrick Utley
One of the phrases that struck me in the film today is that scientists feel that they live on the fringe of society whereas actually they are at the very heart of what is going on in the world. It's partly because of the nature of science, that it is difficult to communicate.

Toni Hoover
We have to create the sense of respect that Andre talked about in our culture, about the fact that it's cool to be a scientist, that it's a noble pursuit, that you can have a huge impact on society. I think we have a generation growing up in our society who is looking to have big impacts on society, and that can be through science.

James Watson
I would put off the age at which people get tenure, because after a while, you just get too much stability. It would be better if you were paid more money and you had no security. I don't think security is the main thing, it's being able to do important science, I don't know the answer but we are so tied into the university tenure system but I don't think we have the resources to allow people to go on and do just ordinary science. You've got to allow people to try very difficult things.

We keep saying that we've got to educate the general public in science. But it's just the opposite; it's a hopeless task because science is so complicated. We actually have to make our scientists more worldly so they are capable of going out and running things other than a scientific lab. What they've learned from doing scientific experiments is the belief in progress, that you can make things better.

Garrick Utley
In the 60s, there was a counterculture, not the long hair, the beads, the free love and all that, the counterculture was the whole NASA program of scientists and technologists who made buzz cuts, flat cuts, short sleeve, nylon shirts and pocket protectors and white socks popular. They were cool because the public understood that what they were doing was part of the cold war competition -- who's going to go to the moon first.

Toni Hoover
In addition to having great science teachers from kindergarten through 12th grade, each of us in the scientific community has to be thinking about what is it that we can do to add to that spark, because perhaps the science teachers can't do it themselves. One of the things that we do at Pfizer is we bring four thousand 7th through 8th graders into our Science and Math Jamboree, and they actually do hands-on experiments in very fun environments. This is not unique; these kinds of things are happening all over. But even if you spark that passion in one of those kids, it's all well worth it. We have a program that's called "Smart Science and Math are Really Terrific" and we have 700 scientists going out to the communities, to our schools, where they do experiments right in the classroom and help supplement the work that is being done by the science teachers. So I think we each need to take on a bit of responsibility also to create that cultural spark around, yes, it's cool to be a scientists because who else are they going to see? We have to be out there as role models.

James Watson
I think part of our problem is that the quality of the people who are teaching high school is pretty low in some cases. And we probably should actually have someone with a Ph.D. teaching physics in a good high school. And we should probably go to a 10-month school year -- how can we learn as much as the Chinese, if they go to school more than we do?