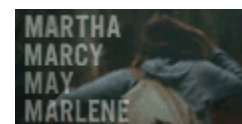


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Women Atop Their Fields Dissect the Scientific Life

By **GINA KOLATA**

Elena Aprile, Joy Hirsch, Mary-Claire King and Tal Rabin are members of a rare breed — women scientists at the top of their fields.

Dr. Aprile, a professor of physics at Columbia University, is searching for [dark matter](#). Dr. Hirsch, a professor of neuroscience at Columbia University, maps brain processes. Dr. King, a professor of medical [genetics](#) at the University of Washington, studies the genetic basis of common complex medical conditions like [breast cancer](#) and mental illness. And Dr. Rabin is a cryptography researcher at I.B.M. All four were in New York for the World Science Festival, and were invited to a 30-minute round-table discussion at The New York Times on Wednesday. They talked about their lives as scientists, the joys and struggles of research, and the specific challenges women in science face.

What follows is a condensed and edited transcript of one part of the discussion.

GINA KOLATA: I once wrote about the life of a senior scientist who traveled from meeting to meeting promoting himself and his work. A woman scientist I interviewed said it was really hard for her to travel that much, and she felt that her career had suffered because of that. I was wondering if this is still a problem. And if it is, how do you handle it?

MARY-CLAIRE KING: We are very well established. It may be more of a problem with younger women who can't travel because their children are small or travel far less compared to their younger male counterparts — although it is also true that young men are much more involved nowadays taking care of the small children, and it may be more of an equalizer.

ELENA APRILE: You have to do what the guys do, and it does not matter what it takes. It is important to be out there, and so it comes with the territory. You have to find a way around to solve the practical problems. You have to.

TAL RABIN: Even when we do make it to the conferences, I think that there is still something different about the way that we promote ourselves.

I remember standing next to one of my co-authors, and he was talking to some other guy, and he

was telling him, “I have this amazing result. I just did this, I just did that.” And I was sitting and thinking there, what result is he talking about? Until he got to the punch line. It was a joint result. It was a result of mine also. I would have never spoken about my result in the superlatives that the guy was speaking about it.

MS. KOLATA: What would you have done?

DR. RABIN: I would have said, you know, “I have this very interesting result, and we achieved very nice things.” But not “This is the best thing since we invented the wheel, and here it is.”

DR. APRILE: I think I wouldn’t do it as nicely as you.

DR. KING: But women can help each other out a lot in this way because we know this about our younger women colleagues. We can introduce them to our colleagues. We can say: “Diane has a fabulous result. She needs to tell you what it is, and don’t move until she has told you.”

JOY HIRSCH: There is one very important component here that is worth raising, and I think that is the need for institutional procedure and commitment to bring women on board. When I was at Yale, I was the chairman of the Status of Women Committee for a long period of time. During that time Yale as an institution had a major commitment to raise the visibility and the numbers of women, and we did exactly as you described without a compromise at all in quality. It is not that we just teach our women to be self-promoting and to be excellent. We must also, I think, take the responsibility of teaching our institutions to be receptive and proactive and even aggressive in this manner.

DR. APRILE: And it is not just the top. It should also be the colleagues and the ones closest to you. You have to have women involved in search committees.

MS. KOLATA: So what you are describing, as I understand it, is getting a lot of people into the beginning positions. But then how do you keep them?

DR. KING: I think the choke point is going from a postdoc to an assistant professorship to a tenure-track position. In my experience the largest remaining obstacle is how to integrate family life with the life of a scientist.

MS. KOLATA: And you have advice for women?

DR. KING: At institutions where there is child care on site, where it is subsidized, where there are enough places for assistant professors to have their children, women do well. And at institutions where it is assumed that you will make your own arrangements, women do less well. There is good data on this. We need institutional commitment.

DR. APRILE: It is by example that young women see that you can be both a successful scientist,

the best, but also the best mother and the lover, and the wife. You can do everything, so I think you need to have more examples of those.

DR. HIRSCH: I think it is important to develop a style in the laboratory where these issues are open and can be talked about. And what happens is that men become involved too.

MS. KOLATA: It must be exciting for your children to grow up with a mother who has such passion for what she does.

DR. APRILE: It depends on the child. The second of my daughters used to say, “Mommy, why can’t we have dinner at 6 p.m. like everybody else?” They finally accepted these crazy hours that I had to live with.

DR. RABIN: I am a child of a working mother. My mother was a very high-ranking lawyer in the Israeli Department of Justice, and I think she is the best mother in the world. And what I can say about her is that although she worked long hours, she was always available to me when I needed her. So somehow I think it is easier for me, because I can go and work without the guilt, because I know you can be a great mother. Whether I am or not is a different question.

DR. HIRSCH: The great discovery for me was the middle of the night. It’s all done, and everybody has gone to bed. You can go to your computer and sit down and work. The middle of the night has been what saved my life as a scientist.

DR. RABIN: What I do feel as a mother is that sometimes I hear these young women graduate students talking. They are saying, “Yes, the baby is going to be born, I am going to be back doing research within a week,” and so on. And I think that one important thing to remember is that these children are going to grow. And if you miss out on their babyhood and then childhood and so on, these times are gone. You should think how to balance these things and get the research done but not forsake these things that are never coming back. The research is going to be there two years down the road, three years down the road, but there are things that are very precious that should not be missed out on.

MS. KOLATA: Would you encourage your daughter to be a scientist?

DR. KING: My daughter is now 36. Both her parents are scientists — her father is an ecologist and I am a geneticist — and she said that she was not going to be a scientist, that the life was just too tough or too grueling. She went to Brown, and she did linguistics. Loved it. Now she works for the Berkeley Humane Society and organizes huge projects for them — writes grants, organizes large groups of people doing work. So in many ways, there is not that much difference between her daily life and my daily life.

DR. HIRSCH: I think the judgment about whether someone should be a scientist or not is a very

serious one, because the life of a scientist, whether you are a woman or you are a man, is very difficult. It is a nonstandard life. It is a life with constraints and obligations that don't come with other types of professions. If my daughter has to ask "Should I be a scientist?" the answer is no. But if my daughter says to me, "I was born to be a scientist. I can't be anything else. This is my life," then you say, "You go, girl."

DR. APRILE: I couldn't have said it better.

DR. RABIN: The truth is that I feel differently. I think that the life of a scientist is a fantastic life. I think it is exciting because every day there is something new that you can go and think of. There are challenges, no doubt, and the times when you can't solve things. So I think it is all a wonderful life. And not to mention even things like time flexibility, traveling around the world, meeting a lot of exciting people. I think that these are fantastic jobs.

I did not grow up with this feeling that, yes, I am going to be a scientist. In fact, in Israel you have to register, you have to apply to a specific school that is not liberal arts. I was good at math. I said, O.K., computer science. And things evolved with time until I knew that this was the path that I wanted to take, and it was also a little bit dependent on the successes that I had that kept me going. So sometimes I think at the onset it is not 100 percent sure, but it evolves.

DR. APRILE: I kind of disagree, honestly, at least in my field, in my life. You have to be very tough, and this is a very hard life and you are always exposed. You have to be extremely strong. You have to face the competition. If one of my daughters were really dying for being a scientist, there would be no question I would support them. But if I have to encourage them, to push them in that direction, there is no way.

DR. HIRSCH: I think it is important to look at this from the point of view of the field of science. It is very important that diversity be represented in the field of science. And so from the point of view of the science — not our daughters — then I think it is necessary to have women and a woman's point of view. Her ability to collaborate, her ability to think differently, is important for the trajectory of the field. But I really agree with you, Elena. You have to be tough. You have to be made of steel.

DR. APRILE: Titanium is better.

DR. HIRSCH: Yes, thank you. I hope it is not everybody's experience, but it has been mine, and I say that from the point of view of a very successful woman. I have been made of steel, and thank heavens, because I wouldn't be here if I wasn't.

DR. RABIN: But this is something that I feel has developed in me. I do not think that I was this warrior that I am today when I started out in the field. I am like that today, but I wasn't like that when I was 20.

DR. APRILE: Even if they are not scientists, these daughters of ours, they have had the best example in their life, and they will carry that example and that passion that they see in us, in me and you, with them. And so you never know what will develop along the way. And if they don't practice science directly, they are going to change the world in other ways. Just because they have had the examples they have.

DR. KING: They will change the world. They don't have to do it our way.