LYDIA VILLA-KOMAROFF INTERVIEW
MAKERS: WOMEN WHO MAKE AMERICA
KUNHARDT FILM FOUNDATION

Lydia Villa-Komaroff
Molecular Biologist
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Interviewed by Julie Cohen
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ON SCREEN TEXT:
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JULIE COHEN:
Okay. So tell me a little bit about your childhood, where you grew up and what your family was like?

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LYDIA VILLA-KOMAROFF:
I grew up in Santa Fe, New Mexico, for the most part. I was born in Las Vegas, also New Mexico, not Nevada. I am the eldest of six kids. So it was a big family. My father was a teacher. My mother was this and that. She was a social worker for most of my life. And they were the first in their families to go to college.

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JULIE COHEN:
As a kid, what did you want out of life?

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LYDIA VILLA-KOMAROFF:
I have wanted to be a scientist since I was about 9. And I think the reason I wanted to be a scientist was I had a misconception that a scientist worked in a large white empty room. If you grow up in a large family, then that's very attractive. And also, I was very curious. I had an uncle who had a masters degree in chemistry. He showed me a paper and he said that his paper, which had a totally incomprehensible title, was easier to write than an English paper and that impressed me.

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And so I think for me science was a getaway; a way to indulge the curiosity that I felt.

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JULIE COHEN:
You were picking traditionally masculine career paths at a time where girls didn't necessarily do that. What was the response you got from your family, from outside, teachers, everyone?

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LYDIA VILLA-KOMAROFF:
Well, teachers are very encouraging. I think that was something that helped. From the time we moved to Santa Fe, when I was in the third grade, my very first teacher, Mrs. Sargent, really emphasized academics. In junior high school we had a principal who began a program whereby scholars, kids who got good grades, got to get a school letter. So you got a little school letter with an academic lamp on it. So there were people along the way who were trying very hard to get us to think about academics.

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It didn't take with- I mean, in Santa Fe, most of the kids, Mexican American kids, dropped out of school. Santa Fe still has a very high dropout rate. So I think that for me, what made it different was that my family encouraged it directly. So mom and dad had made it very clear from I think, before we were born, that we would be going to college. This was not necessarily true of my other cousins. I remember getting together with some of them and the question was not "What grade did you get," but, "Did you pass,"-

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-whereas for us, it was, “What grade did you get,” and something below a B was not really acceptable at home. So learning was something that was very important to the family and supported. And I think my dad was unusual. He was a Mexican-American man who really believed that women and girls should have the same kind of opportunities. He and my mother had an unusual relationship for the time, although as I look at his brothers and their wives, many of them did. Those were very strong women.

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And my dad not only encouraged, but he really- For example, when my mother was in her- I guess she must have been in her 30s, I was 13, she went back to school. When she was a kid she had had rheumatic fever, had missed a year of school, never really caught up in terms of arithmetic, she just couldn’t do math. But she went back to school to get a masters degree and it required that she take statistics. It also required that she go to Louisiana and live in a dorm for, I guess it was 4 or 5 months, 6 months maybe.

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And she did it. She didn't get the best grade in the class but she didn’t get the worst grade either. And I think that was tremendously influential to show me that you really could do things that were hard, things that were unusual, and that it was a good thing to do.

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JULIE COHEN:

Did you have an aptitude right from the start?

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LYDIA VILLA-KOMAROFF:
Well, I was a good student. I was someone who worked hard. I really, really did not like not having the answer. I remember once I hadn't done my homework in a math class and I was petrified that I would be- I got almost sick from the prospect of being called on and not knowing the answer. So I was a very diligent and good student. I think also as the eldest, I was the kid who was the responsible one, took care of the others and so that was all part of the mix.

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JULIE COHEN:
So tell me about college.

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LYDIA VILLA-KOMAROFF:
I went to the University of Washington determined to be a chemist, and the reason I picked chemistry was because in the summer science training program what I had done was to try to do some experiments about stress. The *Reader's Digest*, which was an important influence, had an article about Hans Elias, who was a physiologist in Montreal, who studied stress. And when I wrote to the University of Washington to ask, "How do I become

somebody like Hans Elias," the head of physiology there wrote me back and said, "You should do chemistry," so I did chemistry.

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But chemistry was not easy. I think because my mother always had a thing about math, I got that from her, and was not terribly good at nor fond of things mathematical. The chemistry courses at the University of Washington —I was in the honors program—were hard. And the chemists, the faculty, I think took it as a point of pride to try to weed out students. So we had one class where the average grade on a scale of 1 to 100 was 7.

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So I was not doing well in my chemistry classes and I went to go see my advisor, a chemist. And I sat down and explained the difficulties I was having and he looked at me and he said, "Well, of course you're having difficulties. Women don't belong in chemistry." So being a good little girl I said, "Oh, okay," and I got up and went and changed my major four times.

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JULIE COHEN:
Can you bring yourself back to that and give me what your emotional reaction was to hearing that?

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LYDIA VILLA-KOMAROFF:

I don't think I had an emotional reaction until years later. I think that one of the things that has worked in my favor and held me in good stead is that I can be incredibly obtuse. I just don't get it. So not only that incident, but there was another where a philosophy professor gave me a failing grade on an essay, and so I went to go see him because I didn't- The grade I didn't think was fair and I didn't understand why he had given me that grade.

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So we talked and he changed the grade to an A. And I think he gave me that grade for two reasons. One was, it was hand written and not typed and so there was an immediate reaction to that. And the other was my name, Villa. It was not a name- I mean, this was the University of Washington in the early 60s, and I think he just assumed that a dark skinned, dark haired woman wouldn't be able to write a coherent essay so he didn't read it.

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And that I didn't realize either until about, I don't know, years later. It was partly in talking about it, hearing questions from people, students and others, that made me realize that those were really incidents that were enormously insulting and a put down. But I didn't notice it at the time and so it had basically no effect. That's been true throughout my career, I think.

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JULIE COHEN:
Tell me what university did you do graduate studies at, and what it was like.

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LYDIA VILLA-KOMAROFF:

MIT was the only school- That's where I got my doctorate degree and I went there directly after an undergraduate degree. And I went there only because one of my advisors, who was a woman I worked for at the National Institutes of Health, someone who was profoundly influential on me, she's the one who taught me how to handle myself in a laboratory and she could do that. Her name was Loretta Levy. Because she had been a pianist as an undergraduate and got bored basically. She was at Julliard, so really a fine pianist, and went across to Barnard to do something different and got into a lab.

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Her teacher there turned out to be my teacher at Goucher years later. And it was that professor who sent me to Loretta, who- I said I wanted to be a molecular biologist because that was the study of the very stuff of life. So she taught me how to do things in the laboratory and she also- When I asked her to write me recommendations for graduate school, I was going to come to Boston because Tony had- was going to do his internship here. So I applied Brandeis, Harvard, several programs at Harvard, Tufts, BU, everywhere except MIT.

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So Loretta said, "Why is there no letter here for me to write for MIT?" And I said, "I can't go to MIT." She said, "Why not?" I said, "Because I can't do math very well," and I had this vision of MIT as being a place with a bunch of guys running around with slide rules. It really kind of scared me. She said, "You

have to apply to MIT. MIT has the best program in molecular biology now. And if you're serious about molecular biology, you have to try to get into MIT."

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So, I applied to MIT. And it was a good thing because MIT was the only school in Boston that accepted me. My grades in college had been kind of up and down. They had the right trajectory in that they got better as I got older, but I had failed organic chemistry before I aced it, things like that. So I am sure that, in part, I got into MIT because her mentor, Boris Magasanik, was on the faculty, and she wrote that letter and it got me into MIT, I'm convinced.

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MIT is graduate student heaven. There weren't a lot of women. We were a small class, 12 I believe, and there were 3 of us who were- 4 of us who were women in the class. And we were a very tight group. When I first got to MIT, I ran into somebody who wanted to know if I was there for the secretarial job, another thing that just kind of ran off a duck's back. I just didn't notice that that was actually a put down.

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But at MIT, it was- The graduate students were considered junior colleagues. We ate lunch with faculty in the lunchroom. We worked with everybody. The graduate students were all together. It was just- It was exactly what I wanted it to be. It was fabulous. It was also very difficult.

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JULIE COHEN:

Tell me a little bit about your early career after…

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LYDIA VILLA-KOMAROFF:
After graduate school, I went to Harvard to work as a postdoc- In my field, molecular biology is really no longer a field. Now it's a tool that's used across many fields, but then you really- And still now, you have to do a postdoctoral period. That's a kind of an in between space where you are building on what you have learned as a graduate student and beginning to be more independent in the way that you think and do experiments and so forth.

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It can be a very trying time. You are really trying to make your career at that point and you are very- It's what you do as a postdoc that will set your stage for later. I had had a very good graduate career. I had six papers, I was in a terrific lab. David Baltimore and Harvey Lodish had a joint lab. I was their first joint student. David went on to win the Nobel prize, Harvey is still in the academy, still very active at the Whitehead. So really, remarkable preceptors, and great colleagues and friends as graduate students and postdocs around me.

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So when I went out to be a postdoc, I kind of figured that would continue. And certainly, the level of science was as high but what I was doing was not working. And that's a very- that's a really debilitating thing to happen. You

don't expect things to work very often actually. Science often proceeds by fits and starts, but to have nothing working is incredibly dispiriting.

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So on top of that, it was during the recombinant DNA thing and the work that I was doing got banned in Cambridge, so I went to Cold Spring Harbor which was another year long series of just really, really discouraging stuff. And besides which, I was away from home for the year. So the postdoc years, that first part of it, was just grim. The good thing that happened was that I was sharing a laboratory with a guy named Ietis Stradiatus, a Greek, in Fotis Kafatos' laboratory, another Greek,-

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-and he and I were very good friends, except when we were fighting, which was a lot. He was- is still quite a character and we would butt heads against really silly things. So I went off to Cold Spring Harbor and there I learned some very valuable techniques. What I was doing didn't work but what I learned was just very valuable at the time. And so when I came back to Harvard, Arge had started a project with Wally Gilbert to clone the insulin CDNA.

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So he asked me to join that project because of the knowledge and the particular enzyme that I had brought back with me from Cold Spring Harbor. And that project was magic because first of all, everything worked, which never happens. From the time I joined the project to when we wrote the paper was about 6 months. It's never happened again. And it was a very high

profile project because what we did was to show that you could make insulin in a bacteria and that set me up for the rest of my career.

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JULIE COHEN:
I want you to- If you could explain what recombinant DNA is?

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LYDIA VILLA-KOMAROFF:
Well, I got involved in studying recombinant DNA because that was where the action was. Molecular biology was a period that always has been, since its inception, a fast moving, fast experiment kind of place. It started with Watson and Crick and the structure of DNA. So recombinant DNA is really exactly what it says. It is the recombination of DNA from 2 different sources. From a bacterium, one of those bugs which can cause problems or be a friend, and a mouse or a human.

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And what happens when you take the right kind of DNA from a human and put it with this- connect it to this DNA from a bacteria and then put it into the bacteria, the bacterial machinery will make much more of that DNA, and in some cases will even take the DNA, copy it into RNA which is the intermediate between the gene and the product, which is protein, and make a protein. And it was an astonishing time.

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Because before that time, before the ability to do this thing to join these DNAs, we couldn't look at genes directly. It was like flying over the city. You could see the layout of things, but you couldn't get into the buildings, you couldn't see what was making things work. With the advent of this technology, the ability to take DNA from one source, and take one specific piece of it and isolate it and make lots of it so you could study it in enormous detail, just opened up an incredibly exciting array of things.

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So making proteins like insulin in bacteria was just a revelation. It meant that you could make new drugs. Today, today, anybody who is diabetic and who is taking insulin, is making insulin that is made by these methods. When I was first beginning this work, anybody who needed insulin was taking cow insulin or pig insulin that had been derived from those animals' organs. There was a problem.

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There aren't enough horses and pigs in the world to provide the insulin that was needed so we were looking at an insulin shortage back then. And now there is no problem, because it's made in big vats with these little microorganisms.

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JULIE COHEN:
I want you to explain to me why the recombinant DNA research was so controversial.

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LYDIA VILLA-KOMAROFF:
It was controversial for two reasons. One was, it was truly new and so there was a question of, was it dangerous. If you're looking at the unknown, then you have to wonder, "Well, what's the consequence of going forward and finding out this answer?" And then there was a political component of it, so that some scientists I think exacerbated and exaggerated the danger of this possibility for political reasons.

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The thing that people worried about was if you take a gene from a fish and put it into a bacteria, might you make a super germ. Something that would—frankengene—something that would infect people and make them all very sick. We as scientists could not say for sure that that could not happen. What we could say was that the probabilities were low. You can't take a motor from a lawn mower, put it into a motorcycle and make a rocket ship. It just doesn't seem very likely.

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But the experiment hadn't been done so we didn't know. Q group of scientists led by Paul Berg decided, "Well, we'll be responsible. Let us regulate ourselves. We will do these experiments under conditions which are very constrained, so that any danger of these things getting out is minimized." So there was a lot of back and forth. And then people who didn't really understand the science would then- took sides basically.

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It's very much like now with the genetically modified food in Europe which is, people are adamantly against it, and scientifically it doesn't make sense. And so, it was a period like that, and in Cambridge, the mayor banned recombinant DNA in the city of Cambridge. We were working at Harvard but Harvard did not have bio labs—which aren't very far from here—didn't have a facility that met the criteria for containment that was necessary.

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And so for that project, the mayor was now allowing recombinant DNA but it had to be dined in very defined conditions. MIT had a containment lab and so I went to my mentors at MIT and asked if I could use their facility. So we would do biochemistry in the lab at Harvard and then I would schlep things down the street to MIT into the lab. And I'd get geared up with robe and gloves and covers on my shoes and a hairnet and go into the biolab,-

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-and then do the manipulations there which put the DNA s together, put them in bacteria and then started them growing up. Pain in the neck…

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JULIE COHEN:
And explain again for a layperson, what the hazards were that made you have to dress like that?

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LYDIA VILLA-KOMAROFF:

The hazards weren't, but the rules were. So in other words, we did not believe this was dangerous work. The bacteria that we were working with were very debilitated. They had had half their genes cut away and destroyed. So it was really hard to get them to grow under the best of circumstances, never mind in a person, so that was one. The second- but it was the law, it was the rules now. In order to do these experiments, we had to do them under these conditions. So that's really why we did it is- because it was rules, not because we thought it was dangerous.

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The fear was that you would make a bacteria that would make lots of insulin- It would infect your stomach. You would become infected with this insulin producing beast and then you would die of hyperinsulinemia. Too much insulin is a poison. And so that was the fear.

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JULIE COHEN:

But you were pretty confident this was not a…

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LYDIA VILLA-KOMAROFF:

I could have drunk the stuff. That particular bug, the bacteria that we were working with, just couldn't live in a human in competition with its wild

brethren that we already have in our stomach. So we weren't worried about it. But nevertheless,-

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-we had to wear covers over our clothes so that if- and gloves and special little booties. And at the end of the day, everything was passed through an autoclave, very hot heat that would destroy everything. And all garbage had to be treated that way, so it had to be schlepped in and out. You had double entrants like a spaceship so that nothing could get from the lab into the air on the outside. So we treated it very seriously.

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JULIE COHEN:
Can you tell me a little bit, if there is a particular moment when you realized, like, "Holy crap, this is going to work." Was there a moment?

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LYDIA VILLA-KOMAROFF:
Oh yeah, there was the best moment- there were several moments when we knew we were on the right path. For me, the signal event occurred one day in the lab at MIT. We had been taking DNA, we had been putting it in bacteria. We had been growing them up and something would happen. In this case, if we would grow duplicate plates, if you had- And what we were doing was putting the DNA in a way that if the bacteria got a piece of DNA with insulin in it, then it would lose its ability to grow on a certain drug.

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So we had duplicates with and without the drug. And so I had some candidates that couldn't grow in the presence of the drug and I was looking at them to see if they had some other characteristics of insulin in particular. And one day, when I went into the lab, a bug that had been unable to grow on a drug and had an insert—it had the piece of DNA in it—started growing on the drug.

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What that told me was that the bacteria was now reading right into that piece of DNA 'cause I knew the DNA was still there and that we were making the protein. That was probably the most exciting moment of my scientific career ever. Because I knew that we had a bacteria making insulin. So I immediately rushed down the hall to a friend of mine Bob Weinberg, who is an eminent cancer biologist now at MIT.

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I said, "Bob, I have such exciting news." And he said, "You're pregnant." "No." So then I went and told David Baltimore whose reaction was more in line with the science. And then I went back and told Arge, and his reaction was, "Oh, don't even tell the priest," which was a Greek saying that said this is so important you can't tell anybody, not even the priest. Of course, I had already told several people at MIT.

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JULIE COHEN:

And how about- Did you call home? Did you talk to mum?

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LYDIA VILLA-KOMAROFF:
I talked to my husband that day. I don't remember that I called home. I remember that when I was doing work in graduate school, they understood that I was working with polio virus, and so they could understand that that might be important, but it wasn't towards a cure, it was to understand the way the virus worked. And while I kept them informed about this, I don't think I particularly called. We're not a calling kind of family. I'm sure I wrote and I'm sure that in the usual conversation I told them, but I do not remember making a special point of letting them know.

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JULIE COHEN:
Just give me an overall sense of being involved in the very serious scientific community, going back to the 70s, what was it like for a woman? Were there plusses and minuses?

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LYDIA VILLA-KOMAROFF:
At that time, and still, molecular biology was a little bit in biology, was a little bit like physics is to other sciences. That was where the smartest people went, we thought. And it was a very guy kind of place. That field. And the tone

was set by the early folks, the early leaders. Jim Watson is a fabulous scientist, a remarkable man, not woman friendly, and so there were a lot of people like that in the field.

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I think that I really was very fortunate in the people I chose to work with, because neither David nor Harvey gave any indication of that. In fact, David was married to a scientist, Alice Huang, and they just cared about whether you did the work well or not. And Wally was very much the same way. In fact, we realized a few years ago that many of us, many women who went through Wally Gilbert's lab, have gone on to be in business and science and to do interesting and important things.

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And that's because he really could have cared less about gender, nationality or anything. All he cared about was a focus on excellence and that was true of my other mentors. Others in my class were not so fortunate. I had a classmate, for example, who wanted to work with another person in cell biology and he said, "Well, I don't know. Where did you go to college?" And she said Harvard. And he goes, "Oh, I thought you were from that women's college Radcliffe."

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And it was very clear that he was very unfriendly. MIT itself, although it is graduate student heaven, is a very difficult place to be either a woman or a minority. That's still true, even though the institution has come a long way and has done a lot to try to examine itself. I think there is still- Well, I know

that there are still two things going on. One is, there is a sense that if you broaden the participation in a field of excellence or in a place of excellence,-

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-that that by definition means a lowering of that excellence. That by letting those people in, whoever they may be, is a way to lower the excellence of the institution. The other thing, and it partly follows from the first, is that all of us have a set of embedded assumptions that we make not necessarily with our cortex, but it just is a judgment that occurs instantly.

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And that comes from all of our experiences in life. So, White people tend to look at Black people and they make instant assumptions which they may not even be aware of and would perhaps deny if asked. But we all do it. And so, because of that and because we are not aware of those preconceptions and those unconscious things that can undermine our actions towards another, we can get in the way. And so this happens, I think, in science,-

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-certainly happens in law, it happens in business. It happens anyplace that require- where excellence is considered to be a primary thing.

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JULIE COHEN:
When you first went into molecular biology, could you have envisioned the level of achievement, but also sort of the excitement of the outcome of the insulin project?

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LYDIA VILLA-KOMAROFF:
Not particularly. I think I- At every stage in my career, I think- When I was in graduate school, what I wanted was to have my own lab. When I had my own lab, what I wanted to do was something significant, which I had done as a postdoc already. I don't think I ever quite achieved that again. When I had my own lab and had a fair amount of recognition in part because of the insulin work, I wanted more, different.

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JULIE COHEN:
Now, it's 2011. Is there still any attitude out there towards women in science?

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LYDIA VILLA-KOMAROFF:
I think there is, and I think it varies. It varies from institution to institution. I think there is an increasing awareness that the field is hurt by eliminating talent. When you keep any group of people out of an endeavor, you are limiting the approaches and the possibilities for that endeavor. That's true of science and everything. So, at MIT and at Harvard, there's much more awareness that there is this exclusion, not just of women but also of minorities.

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I think to a greater extent, minorities than women. White women have come a long way. Black men and Black women and Brown men and women and Indianmen haven't gone as far. Even Asians. You do not find Asian women or for that matter, many Asian men, as presidents, provosts, heads of company. They're just not there. So yes, this is very much still a culture in which there is exclusion.

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We need to get over that because we are a country that is increasingly more and more made of the other. And that's an interesting transition point for a country. Since graduate school, I have spent a lot of time on a number of activities that are meant to try to figure out, why is this still the case? Why are there still so few women in positions of authority? Why are there still so few minorities getting into the really good schools? Just, why?

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What are the factors that go into this? And it is very complicated. I think Michael McDowell, who writes really interesting views of how the world works, has pointed out that if you start at a disadvantage, it can be very hard to make up that disadvantage. And so that clearly plays a role. If you were discouraged from thinking that you can do something, then you may not do it. I got a good lesson from my nephew. I think that children look at the world at a really early age and they make decisions that they don't even realize they're making.

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When Matthew was four, he met his two aunts, my sister and me, for the first time. And we spent the day, having a great time. And he went back home that day and he said to his mom, "Oh mom, I can't be a banker, and I can't be a lawyer, and I can't be a scientist, 'cause those are girls' jobs."

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So, children look around and I think that young Black kids and Hispanic kids and Asian kids look at the world, on television, in the movies, anywhere you want to see, and they say, "I do not see someone who looks like me in that role," and they exclude themselves from there. That has to change.

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JULIE COHEN:
Knowing what you know now and having had the achievements that you've had, how does that make you feel towards the advisor?

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LYDIA VILLA-KOMAROFF:
I think it's very interesting that I cannot remember that name. I don't know who it is. I've gone back and I've looked at the department of chemistry, then and now and so forth, now on Google. I can't figure out who it was. So, I mean it's still- It makes me angry because I think there are a number of young women who would hear that and then leave. It is true that many more students, many women go into school, thinking they want to be scientists and they leave.

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And I'm sure that they leave in part because of things like that. Probably not as overt. These days, it's very, very unusual to have something as overt as the Larry Summers incident. It's usually much more subtle. It's, "Well, she just doesn't show leadership qualities," or, "Well, she only has ten papers, and not 15," or, "Her paper is only in that journal, not the other journal."

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You can always find a reason to exclude someone when there are more qualified people for a position than there are spots, and that's how it is in this society. So until you bring someone into the equation who says, "Wait a minute," then it will continue. And the only way that stops is when you finally have women on those studies, on those committees, that are doing the choosing, so it can be very circular.

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JULIE COHEN:
Tell me a little bit about how your academic career has been, and when you have had that opportunity to make selections?

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LYDIA VILLA-KOMAROFF:
At Harvard, I sat on committees where students—graduate students—were selected, and for a while, I was the acting head of the division so I helped there with selections. And at Northwestern, I was in a position where I really

could influence who was hired and who was not, and could help with the women there who are quite an interesting group of people. So there, I think you have to be aware, plus on national committees-

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-where you decide who is going to be giving talks at a symposium. Just something as simple as that. I was really impressed by Mary Clutter who ran the biology directorate at NSF for a long time. She made a new rule. She said, "If you don't have women on your program, your scientific program, you aren't getting money from us." It was remarkable how rapidly people who said, "There are no women who can do this work," found really good women to provide scientific insights in meetings.

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So I learned from her and from others that you really- An individual can make a profound difference. You have to be willing to speak up.

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JULIE COHEN:
Tell me a little about your home life, marriage, and kids. Did you have an environment that was supportive of you as a scientist?

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LYDIA VILLA-KOMAROFF:
My husband is very supportive. We decided not to have kids. It's something that we kind of addressed every five years, I guess. It's an interesting dance

that a couple does around that decision. It's a very important one. For me, I was the oldest of six kids. I had a lot of cousins. Very big family. When most of our friends had kids moving out to go to college, we had nieces and nephews moving in to spend time with us as the adult figures who weren't parents.

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And we have god-children who are here in town. So children have always been a big part of our life, but for us, I think that it- what it amounted to was that I was willing to have children if I wasn't going to be the primary parent because I knew I couldn't do both. And so for us, it turned out that we weren't going to have children of our own. In a way, what that means is I spend a lot of time with kids. I spend a lot of time giving talks and dealing with my nieces and nephews, but for us we didn't have kids.

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We are a- We've been married over 40 years now, and I think we've been supportive of each other. I've learned some medicine from Tony, Tony's learned some science from me. And we have fun together.

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JULIE COHEN:
Tell me, do you call yourself a feminist? Is that a way you identify yourself, and if so-

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LYDIA VILLA-KOMAROFF:

It is, and I think that's partly a function of my age. I find that young women don't. I was… For me, the 60s were a very- that's when I was in college during all the ferment of that time. And then, that was the period at which women were discovering that the world wasn't exactly as it maybe should be, and found a voice.

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And so that was true of me as for others. So I do call myself a feminist. I think that a more important identity to me is as an outsider, because I'm not only a woman, I'm a minority woman. And that is different. It just is. So those are things that have been part of who I am and will continue to be probably forever.

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JULIE COHEN:
Why do you think that young women think feminism is a dirty word?

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LYDIA VILLA-KOMAROFF:
If you're not aware of how the world was and we- Human beings have very short memories. We don't really- We aren't very good at empathizing with what has happened outside of our own experience. And so in the world today, young women really do live a different life. They do team sports, which was something that really young women were not encouraged to do when I was a

kid. They do not run into those barriers. The barriers have been pushed up, and so they don't run into them at early ages.

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It's only later I think that they begin to feel that. They see the stridency of the feminist movement in the 60s. I think in general, young people are a little bit askance about that social protest kind of thing. It's a different generation with different expectations and different experiences, and so, I think there's two things.

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One is they are less comfortable with confrontation. I think that young people- maybe the society in general is less comfortable with conversations of people who don't agree. That we go to great lengths to segregate ourselves into comfortable little groups of people that we agree with. And so I think that's one of the ways in which being feeling as an outsider is helpful, because if you don't belong anywhere, then you belong everywhere. And it makes it easier.

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But as I see young folk, they are not as eager to engage in a conversation with somebody that they know thinks and believes very differently than they do, and remain friends.

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JULIE COHEN:

Do you think there is a difference between- Obviously, you have worked with both a lot of men and women in your career, do you think there's a difference between the way men lead and women lead?

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LYDIA VILLA-KOMAROFF:
I do. I am not sure if that is- I have seen women who lead very much like men, I think they are not as effective, and I think that's because the society judges harshly a woman who acts like a man. That is not a thing that is met with approval in the society or most others. And so, women have to find a different way to lead. I think that for many women, it's also more comfortable to lead in a way that is more consensus building than dictated.

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I think that influence of women is something that's been very positive in most of the professional world. Now there's business books about how really building consensus, listening, is all a good thing in leadership, and there's less of the, "Do it my way became I'm the leader. I'm going to tell you what to do." So even among men, we see that happening more and that's a direct influence of the feminist movement.

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JULIE COHEN:
What would you say is the biggest challenge facing the next generation of women?

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LYDIA VILLA-KOMAROFF:
Actually, I think it's the economy. I think that when economic times get rough, as they are now, then there becomes the polarization of the society. So that people- I mean, I have a friend who used to say when times get lean, people get mean. You want to hold onto what you have. You are less open to the possibility of letting others in, because you're afraid you'll lose something if you do.

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And so I think that because the economy is- doesn't look like it's going to do very well worldwide for some time, that that's going to make it harder for women and for minorities to gain any kind of traction. Because the group that has, isn't going to want to let it go. There's very little to share and so it becomes tougher.

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JULIE COHEN:
Do you remember Title IX?

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LYDIA VILLA-KOMAROFF:
At the time, I didn't think that was so important. I didn't realize- I don't think- I certainly didn't foresee the consequences of it in getting several things

happening. One is just the acceptance and the recognition that for whatever reason, you had to pay more attention to let women do sports. And the effect that had on kids. Because I think what happens is that women started playing team sports in a way that they hadn't before and they could really be excellent in them and that just leads to a different view.

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I mean, a lot of the young women don't understand why "run like a girl" is a funny statement when you see all these incredible athletes going at it. And that just wasn't true when I was growing up. You didn't have people like the Williams, just fabulous athletes.

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JULIE COHEN:
What about the struggle of the Equal Rights Amendment?

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LYDIA VILLA-KOMAROFF:
That was something that did start- I don't think I really appreciated that until much later. I have a sister who is a lawyer. She sent me a series of cartoons that said, "Why we should still vote," which invokes those early women in their struggle to vote. Now, when I give talks to groups of young women, or young people generally, I try to include the importance of their voting 'cause not enough of us vote and there are consequences to that. We get who we deserve by either voting or not voting.

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JULIE COHEN:
What about Hillary Clinton's candidacy?

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LYDIA VILLA-KOMAROFF:
I was very much for Hillary Clinton. I mean, it was signal. But for me, I think more- A greater event was when the vice president, the first woman vice president, I still tear up. That was interesting. Because that was so unexpected. When Clinton ran, it was really weird because here she was, the first woman to have a shot at the presidency, and she was the candidate of the establishment.

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Very odd juxtaposition. I remember that convention and we were watching television. Geraldine Ferraro came out and I just did what I am doing now. Because it was… I think that's the moment, more than any other, that said, "By golly, we might be all right. It might really be true that you can do anything, and have any position."

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Which just goes to show you that however confident we sound about it now, those of us who have done whatever we've done, there is something deep down—and I don't think it's just in women, I think it's true of men too—of

kind of a disbelief that you really… That what you did was important or that you can do something important or that it will continue to happen.

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I mean, women in particular say, "Well, I was lucky. I made good choices." It's very rarely- Women tend to say, "If something good happens, I was lucky. If something bad happens, it's my fault." Which is not so true of men, although I think men too… I think everybody has an underlying sense of uncertainty that you can really make it work.

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JULIE COHEN:
There was a study last year that came out talking about, despite the gains that women have made, their overall happiness seems to not be rising and maybe even declining. Any thoughts about that?

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LYDIA VILLA-KOMAROFF:
Yeah, I've noticed that. Yeah, I've noticed that too, and I think that it's because… There is something about striving to get something which is very satisfying. That struggle itself is very satisfying. You make good friends. You may feel like things are- You can't be the president of the company or the president of the university, or the- You're never going to be in the national academy, but you have really good friends and you're all on the same page and you're all working for something.

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I think now, there is less of that. People are more- seem to be more separated. We're so—especially on the east coast—we're so busy. We don't spend as much time with family and friends as we might, and so that reinforcement isn't there. And even though we are better off than we were—I mean, certainly I am better off than my parents were, or certainly than their parents were—somehow it's not enough.

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People feel it's not enough and they worry that they'll lose what it is that they have or that it's very much a struggle to keep that. I think there's a great worry now because our generation wonders about the next generation. For every generation so far, we've always done better, and it's not clear that the youngsters now—the 30s, 20s, teens—will be able to do better and that's worrisome. So I think we forget where we came from.

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We're also a country and a society not really very cognizant of history, and that means that it's only the now. We're not comparing to what was before, what it was. So in isolation, it feels like it's not right. When in fact, we've come, actually, quite a long way.

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JULIE COHEN:
What is the most meaningful piece of advice you ever got?

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LYDIA VILLA-KOMAROFF:
I think it was my father who told me once- I had been accepted at the University of Washington, and I got a note that said tuition was going up. So I went to him and I said maybe I shouldn't go 'cause tuition's gone up. He said, "How much money do you have to go to college now?" I said I don't have any. He said, "So what difference is $25 going to make?" And so that generalized, "What difference does it make?" "Why not go for it," is something that I think has been very important.

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JULIE COHEN:
What piece of advice- What one piece of advice would you give a young woman about building her career?

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LYDIA VILLA-KOMAROFF:
It is just as hard to do a hard career as an easy career, so go for that which is interesting.

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JULIE COHEN:
And what about pursuing your dreams?

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LYDIA VILLA-KOMAROFF:
Same thing. A lot of kids say, “Well, it's such hard work to be a scientist or a lawyer,” or whatever, and I say, “Well, what are the options? What do you want to do? If you work at McDonald’s, in fact, will be much harder. You won’t have the choices.” So again, follow your dreams because in any thing you do, there will be disappointments, there will be times when it’s hard, there will be things you won’t be able to do, so you might as well do something that will give you pleasure and that leads somewhere or that continues to lead somewhere as you go down that road.

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