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Interview: Sheila DeWitt

Dr. Sheila DeWitt earned her BA at Cornell and her PhD in Chemistry at Duke University. She has since had a distinguished career as a scientist pioneering strategies for pharmaceutical R&D including combinatorial chemistry, nanotechnology, computational chemistry, and deuterated drugs and also as an entrepreneurial business leader. She led turnarounds at three companies and has been founder or cofounder of five biotechnology companies. Most recently, as President & CEO, she developed and then sold Deuteria Pharmaceuticals December 2012 --- and immediately spun out a new company DeuteRx where she serves as President & CEO. She is also President & Founder of JSD Partners, a Life Sciences consulting business providing both strategic and operational expertise for biotech and pharmaceutical R&D.

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David Gill: Tell me a little bit about your business career. How did you wind up in biotech?

Sheila DeWitt: Well actually, I'm a first-generation high school graduate. Both of my parents lost a parent when they were kids. My dad was raised by his grandparents. He dropped out in the 8th grade to work on the farm. My mom went in and out of foster homes until 11th grade when she dropped out. So when I was in high school at age 16, I actually considered dropping out because that's what you did! I was the oldest of three.

Gill: Did your parents put pressure on you to be the first one to get through high school?

DeWitt: No expectations at all. In about the 10th grade, I realized I was doing very well in high school and I was near the top of my class and all my friends were talking about going to college and I was thinking "maybe I should really consider this." My dad was a local delivery truck driver. My mom was a stay-at-home mom. To them, graduating high school was enough.

I ended up in science because I loved a challenge. My high school chemistry teacher challenged us. Therefore, I loved chemistry. When I asked him what were the best colleges in New York state for chemistry, he recommended Cornell or Columbia. I knew that I didn't want to go to New York City so I chose Cornell. In fact, I didn't know until after I was a freshman at Cornell, that it was an Ivy League

school. I was completely naïve. My high school counselor warned me that although I was valedictorian, other valedictorians had flunked out of Cornell. I could barely afford it and my parents weren't helping me financially. I considered transferring to a lower cost college. However, I figured out how to graduate early in just three and a half years. Also, starting the summer after my freshman year, I worked in a chemistry lab at FMC, an agricultural chemical company near my high school, and I loved it. I hated book work but I loved lab work. So when I went back to college my sophomore year, that's what I focused on: lab classes.

Gill: Did you stay at Cornell and go straight through to a PhD?

DeWitt: No. As I said, I love a challenge so I decided I was going to get a PhD and I just stuck with it. During my time at Cornell I was advised not to do my graduate work at the same university. After graduating from Cornell, I worked for eight months at FMC, the company I had worked for as a summer intern. During that time, I realized how limited my career path would be if I just stopped with a bachelor's degree. So I applied to several top-notch graduate programs and decided to complete my PhD at Duke University. It helped that I had experience working in a laboratory. When I walked into a chemistry lab, I knew what to do.

Gill: And after four years at Duke and with a PhD…?

DeWitt: I went back to work at FMC in process research and engineering. After a couple years I met someone at a scientific Gordon Conference who was looking to hire a PhD chemist --- and soon I moved to Michigan to work for Parke Davis Pharmaceuticals (now Pfizer). I worked on neuroscience drugs for Alzheimer's drugs initially.

Gill: So how did you wind up starting up your own business? And how long did you work for Park Davis?

DeWitt: I was at Parke-Davis for nine years in the late 80s and early 90s. During those years, the industry became increasingly concerned with the cost of drug research and development. How can we speed this up? Scientists started developing automation for testing compounds (high-throughput screening). For example, which one of 10,000 compounds act against a specific receptor in your brain? Our little group at Parke Davis started asking, "How does chemistry keep up with this?" At the time, we were on the edge of what anyone else in the pharmaceutical industry was doing. I was putting robots in a chemistry lab for the first time - no scientist had ever done that before. I invented equipment to make forty potential drugs at one time. That equipment was out-licensed and marketed --- the first equipment to enable multiple parallel reactions for pharmaceutical research. Out of that small initiative, a whole new paradigm of doing high-throughput chemistry was initiated which the entire pharmaceutical industry uses today. At the time, it was called "combinatorial chemistry"; now people call it "parallel synthesis." At Parke Davis, we were pioneers. I became internationally recognized and traveled the world as an invited speaker at numerous conferences -- Germany, England, Japan, California. This was in the early to mid 1990s and during that time period I got married and my husband Joe and I had our daughter, Leah.

Gill: I hope by now your parents and home town were aware and proud!

DeWitt: A little bit. Our local paper wrote an article about me and that was a bit of a surprise to my family. In 1995, Parke Davis decided to try to incubate and spin-off a new company. This was my first experience with a start-up. I had always thought I wanted a career at a big pharmaceutical company where I would stay forever and get a pension and they would take care of me. But in the 1990s, security in the industry began to change. I had the opportunity to be the founding scientist at a start-up company to sell automated equipment for high-throughput chemistry. I worked with venture capital executives for the first

time and I loved it. But after two years, we weren't able to raise enough money, which at the time was devastating. I've learned a lot from that experience. It is just the part of the entrepreneurial process.

At the time, Michigan was not a good place to start a biotech company for three reasons --- 1) it was ideal to be on the east or west coast – not the Midwest, 2) we were a little late to market, and 3) coming out of a big pharmaceutical company with pharmaceutical oversight was not considered entrepreneurial. After the financing was unsuccessful and the startup was shut down, I still had a job at Parke Davis - but now I didn't want to go back. In 1997, I was recruited to Orchid Biocomputer in New Jersey as the director of business development where I was able to participate in one of the first efforts to do high-throughput chemistry for pharmaceuticals on a chip. The stock market was all abuzz about biotech in those years. I had never done business development full time before and here I was, a scientist transitioned to business development.

Gill: It's almost like every two years you're hopping to a new company. Has it been the same since then? You develop something and then you sell it off.

DeWitt: Yes, it's pretty much the same, every two to four years, I get restless. That's why I don't know what I'll be doing in five years! Our daughter lived in four homes before she was five. This was a gut-wrenching time in my career because I was recruited to run business development and found out after arriving that there was only $100,000 in the bank at the time. I was employee number eight at this company and soon realized that the technology didn't work, and here I was trying to sell it --- which I just could not ethically do. What do I do? Do I quit or do I try to fix this? I decided to stick with it and the CEO asked me to take over the business unit and fix it. That was my first time running an entire business unit. I fixed it. We delivered on the milestones for the first time with our large pharmaceutical collaborator.

In 2000, the company was changing direction and getting into genomics. I really wasn't using all my skills so when I was recruited to EPIX, a company in the Boston area that was looking to reinvent its business model, our family moved. I was recruited in business development but later changed to running an R&D business unit. I helped with mergers and acquisitions and after we merged, I found myself out of a job. So I moved to another company to help with mergers and acquisitions and led the transition from an imaging company to a therapeutics company. I've been involved in the start-up or turnaround at eight companies or business units.

Gill: But at some point you launched your own company to focus on a particular pharmaceutical development project. And at this point it's mostly working with just a few other people you hire on a contract basis. Do I have it right?

DeWitt: One of the last leadership roles before being a CEO was shutting down a publically traded company. I had several different roles in that company over more than five years. I left the company after leading the merger but was hired back to lead drug discovery, then later business development and finally, was retained as the lead consultant to shut-down operations and sell the assets at auctions. I led the re-negotiation of the rights for several drugs. After that, I really didn't have an interest in doing that again: shutting down a huge facility, laying off lots of people. Between 2007 – 2009, I ran global research and development operations, spending one week a month in Israel. It was hard on our family, on me, and it was a stressful situation.

While I was finishing that up, a friend and former colleague from Parke Davis, who had filed patents on over 240 drugs, approached me to help him define and execute a business plan. That was four years ago in March of 2010. He brought me on full time as a consultant and six months later, I'm thinking "hey I

know what we can do with this!" It was like an ahah moment. "This is what we can do." At the end of 2010 my colleague said "okay, why don't you be the president and CEO?" I thought "OK. He's more of a scientist than I am and he is based out in Nevada and I trust him. He was originally a professor at Ohio State and then he went into pharmaceuticals and biotech. He's an entrepreneur as well. With that company, we decided to do it differently and virtual. Virtual is the new norm for running companies.

Gill: Now let me back up and ask you now some faith questions. When did you self-consciously became a Christian? How did that happen?

DeWitt: In middle school, I became involved in a youth group through our local church. During a youth rally in Buffalo, NY I heard the message. I'm not one to walk up with everyone else in public but I thought "oh that makes sense." The next day, I made a conscious decision to follow Jesus Christ. In college I got involved in Campus Crusade and began to learn and develop my spiritual gift of leadership.

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Gill: So that faith became a growing part of your life. Have you been active in the church?

DeWitt: I've always been active in the church and always interested in the church plant idea. When we moved to the Boston area in 2000, my husband and I got involved in a start-up church in Bedford, NH and loved that dynamic. So you can see my entrepreneurial direction growing.

Gill: At what point did you begin to ask what your faith meant for being a chemist, a researcher, and a business manager? For example, you're working in pharmaceuticals; some pharmaceutical companies, seem mostly interested in making money off of people rather than curing their diseases. A lot of the original founders and leaders of big pharmaceutical companies such as Merck and Johnson & Johnson had a clear mission to conquer disease but it seems that today that mission is a little bit lost. If it's not profitable to conquer some disease, we work on drugs that will be sold indefinitely to sufferers from chronic conditions to keep that revenue stream coming in. That's kind of a cynical way of putting it but have you thought through some of those issues?

DeWitt: Yes I have. I think in biotech we talk about really wanting to help patients. Currently, I'm working on fixing medicines that are already approved. There are medicines that can be improved for patients. For example, you may be able to reduce the risk of seizures with anti-depressants or smoking cessation drugs (e.g. Wellbutrin® or Zyban®) or reduce the risk of bleeding with cardiovascular drugs (e.g. Effient®).

Gill: So what you are doing is helping these medicines to be more effectively targeted at the problem?

DeWitt: We work with all kinds of drugs. One is a drug approved for diabetes (Actos®). In the last ten years, people have figured out that this drug has anti-inflammatory properties and that may be why it's helping the diabetic patients and seen promising results for other disorders such as Alzheimer's disease and liver diseases. It's a mixture of two mirror-image compounds that chemically interconvert. We have figured out a way to stabilize the two compounds and prevent interconversion. We are currently exploring the benefits for a liver known as "non-alcoholic steatohepatitis (or NASH)" that can progress to fibrosis then to cirrhosis then to liver cancer. Our company has determined that one of the two mirror-image compounds is the anti-inflammatory one. Why take two when one of them might be hurting you? That's what I mean by improving it. Do people understand how it works? Not necessarily; it's still an art. When you start looking at pharmaceutical research and God's creation, you start to realize the complexity of our bodies. There's a lot of mystery. My company is more focused on the outcome more than on how it

works. In other words, does it help the patient? That's the bottom line. That's how we think about our business and mission.

Gill: Jesus spent so much time healing people and addressing their disease problems. Do you think self-consciously "thank you Lord that I get to work in this field where I can maybe have a small part to play in that kind of healing work of God in the world?"

DeWitt: Yes I do. God could – but does not - divinely heal every person and every disease. However, I feel blessed that I can actually bring the gifts that I have --- sometimes very simple connect-the-dots wisdom that other people miss just because of the way I'm wired. "Wow, this could really help these people live longer, healthier lives." And that means they will have more of an opportunity to understand who God is.

Gill: In the garden of Eden, God told Adam and Eve to eat the fruit of all the various trees --- but that there's one tree that they should not eat. They should not cross that boundary. Have you ever had to face up to the challenge of saying "you know we could do this but we shouldn't go there." Are there boundaries we shouldn't cross in biotechnology, say in cloning, or genetic engineering?

DeWitt: Some of those things I've thought through. I've chosen not to pursue stem-cell research. Also, I know that there are many scientific challenges yet to be overcome. In the news, you hear that we can clone this or that but it's not been reduced to practice and is physiologically limited. Part of me just says, it's not going to work. But, on the other hand, if scientists do get it to work, I would not be comfortable taking stem cells from aborted fetuses. If you can store your own cells so that they can help you in the future, I believe that could be useful. To cannibalize something or somebody else that God has created, I don't think so.

Gill: It doesn't sound like you've been held back in your field by being a woman.

DeWitt: There are some challenges. I try not to focus on it or use it as an excuse, but every once in a while someone or something will remind me. It is pretty common to be the only woman in a board room or executive meeting. It's sometimes hard to go to a networking event where all the men are talking to each other about golf or cars! But you've got to continue. I've gotten to the point where I don't notice it. Once in a while there is an upside to being one of just a few women at these meetings, like "there's no line in the women's room!"

Gill: How would you advise a young Christian in the sciences on career directions?

DeWitt: I would tell them to aim high and to seek counsel around you. One of the things I did not do well is acknowledge what I didn't know and seek advice from older more mature Christians, especially Christians in my industry. Now, I'm at the point where I seek out those people and work with those people first.

Gill: Do you have some kind of circle of Christian friends in biotechnology that you can contact for both advice and mutual support?

DeWitt: I'm just starting that. It's very hard. There's another woman and I'm actually joining her advisory board. She runs a company in the Boston area.

Gill: What have you learned about the similarities and differences between start-ups and leadership in business and in the church? What can the church learn from the business world? Where is the church different from the way a business would operate?

DeWitt: The church can learn a lot from business executives. The skills I bring from industry to the church are valuable: team-building, leadership, goal orientation, performance reviews, and so on. But you need someone in the church that's open to that.

Gill: Obviously we really want to be led by the Spirit of God and we don't want fallen human systems and traditions to get in the way. On the other hand, it's selling God short if we think that the Holy Spirit can only lead spontaneously and not ever through processes and systems.

DeWitt: Good processes tend to liberate people to flourish in their gifts. Two things that are more challenging in the church: first, being a woman in leadership; second, managing volunteers. In the corporate world, you usually have direct responsibility for your subordinates. In the church, you're managing volunteers, and often what they volunteer for doesn't align with their gifts. The church needs to help people operate in the area of their giftedness.

Gill: In a corporation, you would let somebody completely go if their gifts didn't fit or flourish. But in the church, you can't really let them go completely because they are like your family. They have a place at the table -- not a leadership place but some place.

DeWitt: Leadership is a challenging thing. As you try to prepare for the repercussions of something like changing a worship leader or letting the assistant pastor go, you always have to anticipate what the repercussions might be. This is different than in the corporate world because there are all these other people in the church that wonder what's going on.

Gill: What might churches do to better help their workplace disciples like you?

DeWitt: I think they need to provide a forum or round table for business executives to share and brainstorm the challenges they face in business while maintaining sound ethics in the workplace. Sometimes issues come up that are extremely challenging and it would be so great to have a forum at church where we could draw on each other's wisdom, experience, and prayer support. That would be a start!