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INTERVIEW WITH

Donald Chadwick

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DON CHADWICK STUDIOS

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BARRY HURD:

00:00:34;24 Okay, tell us where we are and what goes on here.

DONALD CHADWICK:

00:00:39;05 Well, this is a relatively new space for me. It's going on four years. And we're in Brentwood, California, which is part of West L.A. And we're actually on some property that I purchased about seven years ago. And was able to develop the property. And finally own my own space. Prior to this, I had rented, like most designers I suppose, warehouse spaces to work in. And this enabled me to pretty much control everything, and not have to pay rent anymore. And make a little investment in real estate. So I'm quite proud of the place. And I really like it. And it's nice to be within walking distance of the house. I don't have to get in the car and drive anymore. So I'm a product of the times now. I try to keep the driving to a minimum, and the walking to a maximum

BARRY HURD:

00:01:36;12 Does having your own space like this, help you be more creative?

Does the muse appear more often here than at the old rented...

DONALD CHADWICK:

00:01:43;06 Well, you know, the process has changed over the years. You know, I started off in a small, little office by myself. And I had a little shop that I shared with a couple of artists in another part of the city. So, I was moving around quite a bit. This kind of brought everything together in one spot. And now that we're pretty much based on CAD work on computers. So, the process has changed. And it's a little more immediate in the sense that we can go from a drawing into a 3-D model quite quickly, because the processes available today enable you to do scale modeling or even full size modeling, quite quickly. So it's getting used to the technology that's taking a little bit of time. But now that we take it for granted, it's just another tool in our tool box, it really helps. And makes quite a difference. And it enables us quite frankly to work a lot cleaner and quicker with the manufacturers who we work with.

BARRY HURD:

00:02:49;22 So, here you can design, do CAD models, and then a little fabrication of models in the shop? Or how does that work?

DONALD CHADWICK:

00:02:54;11 Yeah, we have a shop and we can build everything from a full size

prototype. But typically we start off with quarter scale models. And that allows us to you know, visualize it in 3-D. And we finish the models here. They come in as rapid prototype parts. And those typically are raw little parts. And then we have to sand and finish. And, you know, go through the normal priming and painting and assembly. And then we have a finished model. And then I photograph that. And we use that as part of our presentation. And then if everything goes well, then we start going into full size. And either we do the full size or sometimes the manufacturer will take on that responsibility. It just depends on timing and budgets and so forth.

BARRY HURD:

00:03:43;26 Let's go back to how you got into this game. I mean, you're in school. You were inspired by historical figures. Your parents and uncle. How did you get started?

DONALD CHADWICK:

00:03:51;28 Well, my mother's father came over from England as a cabinet maker. He eventually got into other businesses. But as a cabinet maker he helped me understand how to work with hand tools and wood. And I became interested in models. You know, doing model airplanes and trains as a young kid. I used to go to the model shop all the time. So,

I was very hands on. And when I got into college I found out about this program called industrial design. And you got to make lots of models. Well, that's for me. I don't want to stay in this college of letters and science. I'm not gonna be a business guy. That's not my purview.

00:04:43;13 So, I went from the college of letter and science into the department of art. And took this program called industrial design. And that enabled me to use my hand skills. And drawing skills. And as part of being in that program I was exposed to obviously a variety of designs. In fact, Charles Eames, somebody from the Eames office would come to school. So, I was exposed to a lot of furniture. And I ended up building some furniture prototypes as part of special courses in college. And then when I graduated, I worked in an architectural office. And in the graphics department. And that exposed me more to not just architecture but interior design, and more furniture. And I just became more involved and more interested in furniture design. But it all goes back to the hand tools, working with wood, with my grandfather on my mother's side.

BARRY HURD:

00:05:48;01 What about the designers of the time you were in college and

industrial design? Were there famous designers, at the time? Were they your mentors or heroes? Or how did that....

DONALD CHADWICK:

00:05:53;25 Well, Henry Dreyfuss was our supposed mentor. I didn't really care for the work he was doing. You know, it wasn't what I was interested in. But he did provide stewardship for the program. And we visited his office when he you know, he had a Pasadena office, at the time. So, our group of students went out there. And so, I got to see how they work. And it had some kind of an influence, but it influenced me more away from that kind of product design. I was more intrigued with the people like Eames and Nelson and more of the Herman Miller group. Even the people that Knoll, like Bertioia and Saarinen.

00:06:43;06 And I tended to take more of an architectural point of view, I think, than a product point of view about designing furniture. So, my influences were more architectural educated people. Even the Scandinavians like Alto and Hans Wegner, Poul Kjaerholm, a lot of these people I looked up to quite a bit. Because I felt that they were working very honestly with the materials. And that had a heavy influence on me. You know, it's more of the Bauhaus philosophy. And even some of the people in the Bauhaus had strong influences like

Breuer and Le Corbusier and a number of others. So I grew up with that attitude, and I think it stayed with me ever since.

BARRY HURD:

00:07:31;15 You think that design was more exciting those were all such big names. Was it more exciting back then, or do you think there still is much excitement in the design world now?

DONALD CHADWICK:

00:07:41;16 I think there's an excitement in the design world today. I think it's a little bit differently. I think that because of the technology and the ability to publicize yourself. You know, we have the star designers. I haven't really attempted to enter that arena. I don't know how important that is. But for some designers like the Philippe Starcks of the world. You know, that's become a major vehicle for them to promote themselves.

BARRY HURD:

00:08:25;21 Okay, picking up. Tell me about this you studied Dreyfuss, but you weren't really enamored with his work?

DONALD CHADWICK:

00:08:32;29 No. Well, you know, he was doing telephones. And thermostats. And products that you know, my sense was he was designing the shell of

something. As he never got inside. And I felt I had to have more involvement with the total composition. And I didn't want to just be a stylist. And I felt a lot of these product designers are more of a stylist than anything else. And that was not interesting to me. I guess through my early stages of building model airplanes and trains I got very involved with the mechanics of how things work.

00:09:13;12

And I needed to attack something that had more of a mechanical perspective. And then the resultant final form was kind of the evolution from the inside out. As opposed to getting something, and learning how to package it. I looked at a lot of industrial design as being packaging. And that didn't interest me. So, that's where I was kind of de-influenced by what Dreyfuss was doing.

BARRY HURD:

00:09:38;17

And then the star designers today is you feel it's more style than substance is again, or what?

DONALD CHADWICK:

00:09:42;23

Yeah, I think a lot of it is superfluous. I think there's an awful lot of design that's out there that isn't that useful. And I think in today's world, we have to be a little more careful about what we're doing, and why we're doing it. And I find a lot of the design is just out there to fill

a museum store. Or to be in another publication. And it lacks a certain integrity that I appreciate. And so, I have a problem with a lot of what these star designers are doing. Yes.

BARRY HURD:

00:10:16;06 Here let's take us through an example of maybe one of the first things you designed that it, somebody came to you, and said, "Design x, y, or z," and then take us through that process.

DONALD CHADWICK:

00:10:25;05 Well, the process I had to promote myself. Nobody came to me. In the early '60s California was, you know, kind of evolved design-wise, this was a little bit post-Eames, in a way. I mean, Eames had already established himself with Herman Miller. But it was tough for a young designer, who wanted to follow a similar path. And there were only so many Herman Millers around. So, how do you promote yourself? How do you become known? So, I entered this, something called California Design. It was a series of design shows that were triennials, every three years they would have them. And so, I developed some work. And they took it into the show. It got published. And through that, I at least became recognizable. And in the late '60s, I wrote a letter through a connection to a fellow at Herman Miller. Who was the head

of design. He wrote me a letter back, and said, "Well, I'm going to Switzerland for a year. When I get back, I'll contact you." And he did contact me. And he came and visited me with a gentleman from the Eames office.

00:11:42;11 And we sat down, and just talked. Just like you and I are talking, face to face. And we found common interests. And he gave me an assignment. And one thing led to another. And that was my relationship with Herman Miller. And I did have other relationships with other furniture manufacturers, but they were more local. As opposed to a major company like Herman Miller. I worked with a company called Architectural Fiberglass. And another company called Fortress. And these were local companies, who were predominantly Southern California based. Didn't have the kind of national or international distribution that Herman Miller had. So, when I was able to kind of open the door at Herman Miller, I was obviously ecstatic and quite proud that I was able to finally get to that level. And that's what enabled me to really pursue furniture design, in a very serious way.

BARRY HURD:

00:12:41;23 Now, Miller used his outside designers. They don't have them on staff? And then you worked with...

DONALD CHADWICK:

00:12:46;29 At the time, they had some people on staff, but they were not, primarily their history was working with outside designers. And that goes back to Gilbert Rohde days. When Gilbert Rohde was hired to do, and this is when Herman Miller primarily was doing residential furniture. They were not really considered an office furniture manufacturer. But that was our first exposure to an industrial designer. Gilbert Rohde. And then years later George Nelson came to the company. And he's the one that really taught the theories of good design to D.J. DePree, who was the founder of the modern Herman Miller Furniture Company.

00:13:36;14 And then they eventually worked their way into contemporary work for residential and then into office. And I got involved in the early 1970s, and there were a number of other designers of my generation, who were starting to work with Herman Miller, as well. Charles Eames and Nelson were kind of moving away along with Alexander Girard. Those are the three primary people that Herman Miller had been working with through the '50s and into the early '60s. And now we were the next generation, and it was quite an opportunity.

BARRY HURD:

00:14:16;11 But tell me, how do you work, you're the designer. They give you the assignment. You go home, and you start drawing pictures? You show them to 'em?

DONALD CHADWICK:

00:14:22;04 Well, it isn't quite simple like that. Actually in some cases, you develop your own ideas. And then you take it to them. It isn't strictly, you know, "Design me this. Or design me that." And then you come back and start showing things. There's usually more of a collaboration. And I think all of the major projects with Herman Miller have been more of a collaborative effort. And some were just speculation. For instance, I mean, should we start talking about products that you know, the Equa chair which it came out in 1984, which was kind of a breakthrough product for Herman Miller and office seating.

00:15:03;06 Well, that resulted out of a collaboration with Bill Stumpf, who was also a designer at Herman Miller. And myself. And a team of engineers. And that was not so much an assignment they gave us. It was the byproduct of a larger project that we had been working on. Which was designing the office of the future. And when we presented

that, it was too involved for Herman Miller to take on. But Bill and I decided to take the chair part of it, and develop it, and that's what we did. And we brought it to Herman Miller. And they became interested. And then that one led to the acceptance of the chair as a project. And so, here was a case of bringing an idea to Herman Miller, as opposed to them coming out and saying, "We would like you to do this or that."

00:15:53;12 It works both ways.

BARRY HURD:

00:15:54;18 Okay. And when you're designing, where do you go for inspiration? Do you listen to music? Do you look at paintings? Are there analogies you draw on to get your creative mind going?

DONALD CHADWICK:

00:16:04;16 Well, you know, Bill and I when we got together, we found a lot of common interests. I think improvisation was one of them. And jazz music was particularly of great interest to Bill. And I grew up with it as well. And we both loved toys. The idea of the toy-like quality. And we both had collections of toys. And so, that I think those were kind of influences in the development of the chair. We wanted it to be toy-like. All the parts were very specifically dictated by form and function. And but it went together in such a way, it was almost like putting

together a toy.

00:16:47;11 And so, there were influences like that. Of course, there were influences like Charles Eames, as well. Who paid a lot of attention to form resolution, and connections, and how parts went together, and how they were finished. And just the integrity of the parts. The honesty of the parts. I think those are major influences on how Bill and I worked at the time. And how I've continued to work since then.

BARRY HURD:

00:17:11;13 Tell us a little bit, to people who aren't designers, when you say the honesty of the materials, the integrity of the parts. What does that really mean from a design standpoint? That maybe the average person could...

DONALD CHADWICK:

00:17:21;21 Well, it's using a material for its real properties. In the case of metals or die cast metals. That you're using the metal and you know that it's metal. It's not supposed to be any other material. Molded plastics are molded plastics. They're not simulating or trying to imitate another material. And it's just using materials for what they are. And there's an understanding of the limitations of materials. And so, what we did of the Equa chair, for instance. Is explore the limits of materials.

00:17:59;21 The limits of what you could do with die cast parts. The limits of what you could do with fiber-reinforced plastics. So, there's a series of experiments that you go through, through the process. And I think that's what I find missing in a lot of the new hotshot all star designers. There's no such thing as experiment anymore. With them. And I think that's what leads to a good design, is the idea that you're experimenting along the way. You're taking the risk, you're taking the chance. Not knowing whether it's going to actually be a real product. But that's the enjoyment of going through that process. Of taking the risk and developing materials and finding what their limitations are. And that's, to me, the honesty and in the design.

BARRY HURD:

00:18:55;29 Well, when you were working, you designed it, you have engineers and specialists and materials and so forth? How does that whole creative process work with the other team members?

DONALD CHADWICK:

00:19:06;13 Well, you try and be a good listener, first of all. Because each one has their expertise. And I think part of being a good designer is listening to the expertise of others, as well. But you have to be in control. And there were times with the development, not so much of the Equa

chair, but the Aeron chair, where we were really challenged, in terms of materials and processes.

00:19:33;20 And we stuck to what we believed in. And developed the chair through a variety of experiments. And 'cause we're out to produce something that had never been produced before. And so, I'd say that's taking a risk. And but we were able to do it, because we had the support of certain engineers, and certain fields of technology, that enabled us to go to the next step, and develop a whole new way of putting a chair together. And that's what's exciting about furniture design. And design in general.

BARRY HURD:

00:20:10;07 Give us some examples of the, you say a whole new way of designing and building a chair. What are some examples that made the Aeron chair so revolutionary?

DONALD CHADWICK:

00:20:15;22 Well, I think the most revolutionary part about the Aeron chair is that we broke away from the tradition of using foam and upholstery. And basing the whole chair on the idea of having an aerated suspension. And in order to do that, that required developing a whole new material, which we called the Pellicle. And how the chair actually is

physically manufactured is a whole new process. Because this material, this woven material, which is elastic, had to be stretched and had to be molded into what we call a carrier. Well, that whole technique, which is called encapsulation, had never been done before, for furniture, on a mass-produced scale.

00:21:00;02 Just didn't exist. So, we developed a whole new technique for producing chairs. And of course, since then there are all kinds of variations on that theme. It became more of a style theme for a lot of other chairs. And unfortunately, they didn't fully understand what we were doing. But that's a whole 'nother story about how design can influence a style. When you originally develop it to develop a whole new technology on how a chair is made.

BARRY HURD:

00:21:32;02 Well, that's what I was gonna ask you. I mean, they said, "We design a chair." And you're saying, "Let's invent a whole new way to make a chair." You could have said, "Let's take some things that we already know and just...". What pushed you to want to say let's reinvent the wheel, in essence?

DONALD CHADWICK:

00:21:45;08 Well, you look at history, and you look back. And you see elements

say, in Thonet's work. And if you look at the woven cane, for instance, in all those chairs. That kind of triggers an idea. "Well, maybe we don't use cane, but maybe we take that idea of something that's porous and breathable and stretched. And maybe we can come up with a better way, and apply that to an office chair. I mean, it's never been done on an office chair before." And having the knowledge that somebody is already experimenting with that idea, just through your own research, that you find these things out.

00:22:26;19 And we were able to develop this whole technique for designing a chair that had the suspended elastic fabric in it. And we deliberately decided to move away from the traditions of making furniture with foam and upholstery. And I think a lot of it was beginning to understand the whole ecology of the movement. You know, using less material to get more comfort more utility out of less material. And then we've continued to move in that direction.

BARRY HURD:

00:22:59;03 What about the role of commerciality? I mean, there's design, but you're also thinking, "We have to sell X amount of these." How does that help play into the designer's whole world?

DONALD CHADWICK:

00:23:07;08 Well, the designer has to understand, I think, that even though you're taking this great risk, and you don't know whether the product is going to be accepted. I mean, you may like the product, and maybe a few other people will like the product, but what about the rest of the world? How are they gonna encounter this? And we went through a series of focus group testing with Herman Miller. I mean, that's normal for them. They will show prototypes to certain groups of people. And we got enough feedback that enabled us to have the confidence that this is a radical design, but we think it's gonna work. Now, we didn't know how well it would work. Nobody ever thought it would be the success it has been over the years. There's no way of anticipating that. But we did have a good feel about it. And we had good feedback from people who's opinions we respected. And that enables you to commercialize the product.

BARRY HURD:

00:24:08;08 Were there a lot of creative battles with different people, throughout this? And if so, how did you...

DONALD CHADWICK:

00:24:12;10 There were numerous creative battles. Because there were many

instances where certain people in the company, in Herman Miller felt that we were not gonna be able to produce this chair with a suspension on it. That it just was not practical. And it was gonna be too costly. And they wanted to look at upholstery again. Well, I was vehement about not doing that. I said, "There's no way we're gonna produce another chair with upholstery on it. We're gonna solve this problem." And I had enough confidence in this company Cascade Engineering, which developed this encapsulation process, that they would solve the problem. And they did. And that enabled the chair to, had we not been able to produce the chair with a suspension, it wouldn't have been the chair that it is today. There's no question about it, in my mind.

BARRY HURD:

00:25:02;08 Did you ever have any doubts when you said it? Or did you get this sense of, "I'm sure that I could do it."

DONALD CHADWICK:

00:25:06;06 No, I was determined. I was absolutely determined. I had the confidence with these particular engineers that we were working with on this encapsulation process. I mean, they were confident. And I mean, they were so positive, so optimistic, that that wore off on me.

And a few other people.

BARRY HURD:

00:25:24;28 And you say you worked with Bill Stumpf on this. He was your collaborator? How does that go back and forth? How do you work with somebody--

DONALD CHADWICK:

00:25:31;13 Well, that's a good question. Because he was based in Minneapolis. And I'm here in Los Angeles. Well, we made lots of trips back and forth. And we met both at our respective offices. And also at Herman Miller. And we had a very good communication relationship. And it worked out. I mean, there were arguments. There were disagreements. Bill wanted to go one way. You know, I refused. And you know, somehow we managed. After the battle was over, we'd go our own ways. And then maybe we'd come back but it's not easy to collaborate. I mean, it really isn't. But out of that turmoil come, I think, you can develop some very, very important ideas.

BARRY HURD:

00:26:21;07 Can you give us some sense of when concepts started to, when I can roll off into a store and buy one? How long of a period of time is that?

DONALD CHADWICK:

00:26:28;19 Well, with the Aeron chair, we started on that in I think it was early 1991. We developed the first concept drawings and began to develop some scale models. The chair came out in October of 1994. So, you can do the math. It's just under four years.

BARRY HURD:

00:26:52;00 Is that typical of something of this...

DONALD CHADWICK:

00:26:53;23 Well, for that complex of a chair, I would say that was pretty fast.

00:27:03;26 And even today, some chairs are taking longer, some are taking less time. But when you're breaking new ground with new materials and processes. And reliant on somebody to develop the woven material, the Pellicle. Somebody else to develop the encapsulation process. To take this woven material and mold it into what we call the carrier. That takes a certain amount of time, just to develop the process and the material.

BARRY HURD:

00:27:35;21 And at what point did you know you had like a big hit on your hands?

Within a year or?

DONALD CHADWICK:

00:27:40;11 I would say within the first year we had a sense that because of who was purchasing the chair, you know? We had some major companies in the technology field that were very interested in the chair, and were purchasing the chair. And then it just sort of blossomed out into areas we never anticipated. I mean, particularly areas that you would sense would be very conservative. That "Well, they'll never buy a chair like an Aeron chair. It doesn't have upholstery, it doesn't have leather, it doesn't have wood." I mean, you look at the industries at the time, the energy companies, the legal profession, banking. They all became huge users of the Aeron chair. And we never expected that.

00:28:27;12 And then just one thing led to another. And it got exposed through companies like Disney, for instance. It found its way into the film world. And it got on you know, a lot of free exposure for Herman Miller. Because it was used on a lot of television programs, and a lot of commercials. And nobody expected that. It just happened.

BARRY HURD:

00:28:52;20 It's sort of like you had a blend of art, functionality, and commerciality. I mean, that's like the triple crown.

DONALD CHADWICK:

00:28:59;00 It is. It is. And but there's no way of predicting that. There's no way. Anybody that tries to predict it's probably gonna end up wrong. And that was the great expectation. But nobody would ever have really believed that something could have had that profound of effect on the office seating market.

BARRY HURD:

00:29:21;12 Now, you have to tell me, was there a moment those people that said you can't do this. You stuck to your guns. You walked in a year after, and you're showing, "Look at this thing." What did they just turn and walk the other way down the hallway, or how do they react when they see ...?

DONALD CHADWICK:

00:29:32;26 Well, I'll tell you. There were initial reactions. When we went in when we used our focus group testing. First the concept, the whole program was discussed. Then the chairs, we had three different prototypes, 'cause they were the three different sizes of the chairs. And they were cloaked with a black cloth. And they were brought into a room. But the audience was not allowed to see the chairs right away. Then the covers were removed, and they were asked to respond. And not sit in

the chair yet.

00:30:09;21 Initial responses were all over the map. Everything from Darth Vader to, "What is that silly thing?" And once they sat in the chair, their reactions changed drastically. So, they found out that, "Yeah, this is a comfortable chair. And I'm not sitting on upholstery. It's very untraditional looking. And yet, it's comfortable. I like this." And so, it was like it went from skepticism to joy. It was almost that much of a flip flop. And that gave us a lot of confidence that, you know, 'cause that was the primary purpose. It wasn't to design a chair that looked different. It was to design a chair that's more comfortable than any other chair on the market. But done in a different way. So, visually it stood out differently than all the other chairs that we would line up. Because a lot of chairs were beginning to look very much like one another.

BARRY HURD:

01:59:58;00 There was another one was something the woven material I guess, that you call...

DONALD CHADWICK:

00:00:34;08 Well, Bill and I were introduced in at Herman Miller right after Bill's chair, the Ergon chair was introduced. And that was in 1976. And I

think we were introduced either in '76 or '77 in the model shop at Herman Miller. And we were asked to collaborate on a project by a couple of people at Herman Miller to work on this office of the future. And that's how we met.

00:01:07;09 Now you asked how we worked together, how we hand out the work. Bill had a masters in research and ergonomics. I was probably more oriented towards the hands on building you know, developing the form and how things went together. So our expertise kinda came together in that sense. He having more of a research ergonomic background mine being more of a builder, developer, experimenter.

00:01:48;02 And our work would kind of develop that way. He would work out say the kinematics, the movement of the chair. We would take that and actually develop into forms and build the first working models. And we worked back and forth. And really we'd have to show each other what we're doing on a regular basis. And the chair just kind of evolved out of both our collaborations.

00:02:17;15 I mean, it's hard to describe each step, but I would say our motives come from our various backgrounds and then they come together, and we're able to collaborate in a way that was fortunate for both of us.

BARRY HURD:

00:02:34;20 It's like that thing where you could feed off of each other's ideas, like he'd say, "Hey, that's a good idea."

DONALD CHADWICK:

00:02:39;16 Yeah, absolutely. Yeah, we had a certain symbiotic relationship. Even though we came from totally different geographies and backgrounds, we had an awful lot in common. And- that's what allowed us to work together the way we did.

BARRY HURD:

00:02:58;07 Yeah, the Aeron chair, as you develop it, tell us about some of the things stumbling blocks, mistakes that design changes that you learn various things about the chair, and how you handled those. Things that would delay the schedule, et cetera.

DONALD CHADWICK:

00:03:10;25 Well I think there were several delays in the chair, as there is in a project of that complexity. But I think the major development or I wouldn't call it delay, but the major time consumption was in developing the suspension for the chair. The woven part of it. And then the fact that that woven product had to be put into an injection molded tool, and molded around.

00:03:38;03 So we started off with an existing material that a company was making down in North Carolina. But it was used as a substrate, or suspension in a developed prototype automotive seat. So it was underneath foam. But we started with that material, and we had a round section what's called a monofilm. And it's an extruded monofilament. And we found that that was too abrasive.

00:04:12;07 So we had and it was also difficult to get mold pressure, the clamping mold pressure to close off so that the liquid plastic didn't leak into the woven material. So we refined the cross section into an elliptical section. And by being a little bit flatter, that enabled the mold to shut off and prevent the molded resin from leaking into the woven material itself.

00:04:36;21 All of that took quite a while in time to develop. First the monofilament shape the amount of what's called filling yarn, which is runs in the weft direction. The monofilament is the warp direction, the filling yarns, which is the pattern you see the vertical striated pattern, that's a filling yarn. And that allows the surface to become more slick, so it isn't grabby.

00:05:11;28 And all of that took time to develop. And then that had to be put into an injection molded tool, stretched and encapsulated. And so that

whole process took many months to develop. I think the other parts of the chair were more straight forward. One other part that took some time was something called a torsion spring. And the internal workings of the tilt mechanism involved what's a rubber torsion spring.

00:05:40;12 And that had to be custom made and custom formulated for the right loads that are subject to it when you're sitting in the chair. And that took a number of months to develop.

BARRY HURD:

00:05:53;02 Well were there any situations where you went down one road, and you got down, you said, "Wait, this just doesn't work, let's back up and go some other way," through your experimentation process?

DONALD CHADWICK:

00:06:02;11 No. No, I think we knew the right direction early on. Through just our mechanical, our kinematic models, and so we stayed on course.

BARRY HURD:

00:06:15;25 What about the Pellicle, that name, where that came from? I mean, it's a famous...

DONALD CHADWICK:

00:06:19;24 Bill Stumpf, he's not around anymore, so we can't ask him. But he found it somewhere, he was great at researching out names for certain

parts of the chair. And he somehow he found this name, Pellicle, and I can't really tell you the derivative of it.

BARRY HURD:

00:06:39;04 And now, before this chair was even released to the public was gonna go on display in New York in the museum, right?

DONALD CHADWICK:

00:06:44;16 Well I'll tell you how that happened. That's an interesting story. There was a young woman who was teaching at UCLA, her name is Paola Antonelli. And she at the time was writing for *Abitare* magazine and *Domus*, and was just beginning to become a curator at the Museum of Modern Art.

00:07:07;29 And she came to my studio in Santa Monica and she was aware, or maybe I told her, we were working on a chair for Herman Miller, and she was curious to know what we were doing. So I exposed her to the chair, and some of the early prototypes, and she became fascinated with it. And so she was well aware of what the chair was going to be before it came out. And she showed it to the staff at MOMA, and so when the chair came out, it was almost in the collection at the same time.

00:07:44;10 So it was through exposure to Paola that the chair got into the museum collection. And after that, of course, it found its way into numerous museum collections across the country. But that was the beginning of its introduction to the museum through Paola Antonelli.

BARRY HURD:

00:08:06;09 Now people would assume the Aeron chair is your proudest moment, but maybe not. Tell us about some of the things that are your proudest moments in design.

DONALD CHADWICK:

00:08:13;29 Well that's one of them, obviously. Because we never expected to be such a success and having such an influence on the furniture industry. But I think our earlier chair, the Equa chair was also a very proud moment, because we had to break a lot of new barriers just to develop that chair. That involves a relatively new technology of a flexible shell.

00:08:40;07 So that was a proud moment but I think the proudest moment was getting involved with Herman Miller to begin with. And that product, I don't know if it's in the Ford Museum or not, but it's a modular seating program, and it's made up of a series of sections that fit together, and form either straights or curve a linear forms. And that was all based on a molded foam process, that Herman Miller had brought in house.

00:09:07;17 'Cause I was always fascinated with new processes and materials and this molded foam enabled you to do certain things that were quite different than had been done previously. So the introduction of that in 1974 was a major moment in my career.

BARRY HURD:

00:09:27;00 And how do you keep regenerating ideas? I mean, you said you like jazz music, are there analogical reasoning we talked about. Tell me a little bit more about that, about how you keep churning it, and keep staying fresh and new ideas.

DONALD CHADWICK:

00:09:39;18 Well I think I like to look at things, to be blunt. And I always see things in certain objects that I see relate or correlate to some problem that maybe I'm trying to solve. In other words, I'll find a solution in something else. So it's being very aware of the world around you, whether it's manmade or something in nature.

00:10:05;08 You're constantly looking and analyzing things. And I think that's just, you know that's genetic. I have no other reason for it. But I do have an interest, I've always been fascinated how things go together. And as I say, whether it's plant form or animal form, or manmade, it's a

fascination. And I think you take those elements and you redistribute them into your ideas that you're trying to solve, the problems you're trying to solve.

BARRY HURD:

00:10:37;05 What about somebody who's thinking of becoming a designer, you know, maybe they're in high school, or whatever, maybe younger. What would be your advice to them, lessons you've learned?

DONALD CHADWICK:

00:10:46;11 Well first of all, you have to be very curious. And if you don't have the curiosity, I would say go somewhere else. And you also have to have a lot of patience, because becoming a designer takes patience perseverance. And you have to believe in yourself. And you have to have a very positive attitude, because there are times when you get very frustrated.

00:11:07;15 And if you can't deal with frustration being a designer, I think you oughta go somewhere else. So I would say, first of all, you have to have an imagination, you have to have a curiosity, and you have to have the tenacity to stay with something and believe in it.

BARRY HURD:

00:11:25;05 What about even younger children, that are just I mean, advice to

them? That maybe not to be designers, but just lessons from your life and what to do?

DONALD CHADWICK:

00:11:32;18 Well I think exposing younger children to the world as best you can-- you know showing them things, taking them to museums exposing them to as much as possible to open up their eyes and their minds so they have a much broader perspective. I think hopefully education is so critical. And 'cause I remember when I was teaching, I used to have students that would come up from other departments, from the history department, from the school of medicine.

00:12:06;21 And sometimes they were better students than the people who were actually majoring in design, or at least they brought ideas into it. So I think the cross-pollenization of ideas is so critical. And you know for children to be exposed to that is even better.

BARRY HURD:

00:12:23;04 What about you're talking about how the business is changing, you were hands on your with the tools and everything, now we're into the CAD/CAM, making that switch, I mean, 'cause you were so into the way it worked. Was that hard for you, and do you think that we're better off now than we were?

DONALD CHADWICK:

00:12:37;11 No. No, it's just another tool in the toolbox. I mean, it's almost an imperative. I don't know if we're better off, because we still model things in real 3D. But how we get to that 3D model is just a little bit differently. But we still build things and touch 'em and feel 'em. And I think that's critical. We have to be able to still have that sense of touch.

BARRY HURD:

00:13:02;02 You think some things are designed too much on computer, and they never start in that?

DONALD CHADWICK:

00:13:04;27 Yes. That's absolute, I think that's what...

BARRY HURD:

00:13:07;12 Tell me a little bit about that

DONALD CHADWICK:

00:13:07;17 That's one of the weaknesses of using the computer. Is that it may look great on the monitor, but when it gets into three dimensions, then you're in for surprises. And unless you're really good at understanding how the form reads on the screen, I mean, I would never just go from a CAD file into a 3D thing you're always going

through some changes.

00:13:35;24 As much experience as you may have with understanding the three dimensions of some part, you still need to put it all together, look at it, try it out, and go back and do some modifications. That's just part of the process.

BARRY HURD:

00:13:50;03 Tell me a little bit how your sense, your principles of design have evolved from when you started out, for that I guess that first letter you wrote to Herman Miller to today, is the core principles, are they still there, or have you evolved in

DONALD CHADWICK:

00:14:00;20 I think the principles are still there. I mean, I still tend to work the same way. It's just that I think that as again, you have more tools to work with. Instead of pencil and paper, you know, you've got the computer now. Instead of building scale parts by hand, you send the files to a rapid prototyper, and the parts come back to you, and then you finish them.

00:14:23;10 And but we still make prototypes from scratch. You know, I still believe in that hands on skill that's necessary. And I think a lot of designers either they're not taught that, or they don't care for it. That

they find comfort in just using the computer. But I think there's always something missing.

BARRY HURD:

00:14:46;17 You sorta look around the world where are the most innovative designs coming from? Is America still, Europe, or what's your opinion of that?

DONALD CHADWICK:

00:14:52;17 Well, I think the most innovative designs are probably coming from places like you were yesterday, JPL, for instance, Cal Tech. A lot of research in the aerospace industry. I think you look at Southern California design, just say, as a region, you know, why have we been so revolutionary in a way?

00:15:17;14 If you look at the history of the development of surf boards and the boats and fiberglass chairs, it's all come out of the aerospace industry, 'cause of the development of the materials, and the processes. And being exposed to that, I think is really what leads you on to you know, new ideas.

BARRY HURD:

00:15:43;00 You think America still has an edge as an innovative country, and if so, why?

DONALD CHADWICK:

00:15:47;08 I think so. Well, I think a lot of it is in just the pioneering attitude of the country. You know, being taking the risk. I think we're risk takers, just because of the way our country evolved. You know people coming across and fighting the elements. I mean we're a very young country, and yet we've done so much in a very short amount of time. And I think as Obama said last night, we're gonna get out of this thing. And you gotta think positively.

00:16:16;16 But I think inherently, we're a very positive society. And particularly in Southern California you see that. I mean there's always somebody fiddling around with something. You know, just taking a chance with some idea, whether it's a skateboard, a surfboard a mountain bike, you name it. A lot of it happens right here, because people are always trying to find a better way of doing something, or a new way. And it's in our blood.

BARRY HURD:

00:16:47;07 You know, one of the things we're planning on this interview, is that we can preserve it forever. Which, you know, we don't know what that means, but you know, hundred years, or who knows, 1,000 years. We're giving everybody the chance to, you wanna leave a message to

the designers or the people of the future, here's your chance. What would you say to them?

DONALD CHADWICK:

00:17:01;10 Oh boy. I would say just have a belief in what you're doing, and always try and keep a curiosity. And be an optimist. But never be afraid to take risks.

BARRY HURD:

00:17:23;19 And how 'bout this, a slightly different question, when people look back on your career and what you've done, who you are, what would you like them to remember you for?

DONALD CHADWICK:

00:17:37;15 I think that I'd like to be remembered that I tried to be honest with my work. And somewhat humbled by it as well.

BARRY HURD:

03:00:16;14 All right, well, tell us about this chair and where it stands in the evolutionary world is chairs in your career.

DONALD CHADWICK:

03:00:21;28 Well, it stands as I would say the first breakthrough that I had as a designer. And we were enabled to really experiment with an all-plastic shell, which had not been done before. A plastic shell existed, of

course, through Eames and all the manifestations of that era. But this was the first mass-produced plastic shell that kind of adjusted itself to the anatomy of one sitting in the chair. And that we developed this shape, this eight-shape cutout. So as one sits in the chair, the back will flex back. And the lumbar will turn in so it's what you would call a self-adjusting plastic shell.

03:01:15;20 And that was unique in office seating. Nobody had done that before. I mean, they had done it mechanically, you know, through a series of mechanisms that articulated. But this was a one-piece molded plastic shell that just flexed in a certain way to follow so it allowed various sized people of different weights to sit in the chair and find a comfort level just because the shell would flex.

03:01:45;15 So that was one major breakthrough. The other was the way the chair tilted when you leaned back in it. Up until this point most chairs would tilt directly over the post. It's called a knuckle tilt. So it would tilt like this. And we developed there were some other studies done. But we developed what we call a knee tilt. I moved the tilt point from being centered over the post forward to what sort of analogous to the knee. Of course, the knee out here. But we call this a knee tilt.

03:02:24;20 So it became a new term in the industry for a tilt mechanism, knee tilt.

And so it actually articulates through this pivot point. And so that was a major breakthrough. And in order to do that, we had to come up with, you know a special springing mechanism. And most chairs at the time were covering the mechanisms with you know, with a plastic shroud.

03:02:58;05 And we had looked at bicycles. And we used all kinds of if we spoke about analogies earlier. We looked at musical instruments like a clarinet very various saxophones and how all the keys operate and how you can see them. Even the Eames aluminum group products where all the parts were very refined and you displayed them, you celebrated them rather than hiding them. So this whole tilt mechanism was designed around that idea of I'm a mechanism, but I'm celebrating myself.

03:03:34;29 And so we opened it up and showed all of the parts where heretofore all of the chair manufacturers were just basically hiding whatever the mechanism was under covers. So this kind of opened up and celebrated the function of the chair through the development of the forms.

03:04:00;03 Another breakthrough which kind of came out of the Eames philosophy, too, is how these parts went together. And I'm gonna tip

this over. Because this chair was part of a larger program which included side chairs and a high-backed version of the chair, so all of this was modular. It had to go together and be able to take you know, easy assembly and disassembly. So all these parts basically fit together with four bolts that hold the seat and these castings together. And if you didn't want the arm, you could actually physically take this out, pull the arm out, and you'd have an armless version of the chair.

03:04:49;11

Or if you wanted the higher shell, you know, it would be the same undercarriage but just the taller shell so that the modularity and the ease of assembly and disassembly were kind of unique for an office chair at that time. And everything, all the connections were celebrated in the sense that we didn't hide them. We tried to refine all of these shapes so that again, we're going back celebrating these different forms and how they articulate.

03:05:22;15

So another important part of this program, this particular chair shows a separate seat pad and back pad. The chair was also available without any pads on it whatsoever. Because the shell was flexible, we didn't need the addition of the upholstery. Now, if you compare this chair, for instance, to an Aeron chair, which if you looked at it, it has very contoured molded foam forms, which when it first came out were

the manifestations of the ergonomic philosophy behind the chair.

03:06:06;19 But the chair had very little, if any, flexibility. All the flexibility was just in the fact that the foam gave had a forgiveness to it and was contoured to provide proper comfort. Now we're taking that and we're translating that into a molded plastic shell that flexes with minimal upholstery.

03:06:25;16 So we're scaling down. We're taking what was basically bulky foam shapes and reducing them down into a very thin shell with very thin upholstery shapes. And that was quite a departure away from existing office seating at the time. In doing that, we are also conveying the kind of the democracy of seating. Prior to this chair coming out, typically the executive had the big stuffy chair. The secretary, which is an old term but that was the common term for somebody that was typing or whatever they were doing, they got the lesser comfort chair.

03:07:11;15 With this program, we were promoting egalitarianism, that everybody deserves a good chair. Everybody deserves to be sitting in a comfortable chair. So there was no distinction here between the one that was doing secretarial work or the executive. So we tried to democratize the whole idea about office seating. And that became our kind of mantra as we developed into the Aeron chair program. So a

lot of the early ideas conceptually in this chair found their way into the Aeron chair.

BARRY HURD:

03:07:44;20 And what happened? Was this one a big success?

DONALD CHADWICK:

03:07:47;20 This was quite a big success. It was introduced in 1984. It is still being produced today in a limited version. But it's still a Herman Miller product. And it doesn't exist in this form anymore. It's evolved a little bit differently. But it's still the basic chair as you see it.

BARRY HURD:

03:08:11;06 And tell me, as a designer, they hire you. They pay you a fee to design this, and then you get royalties that continue as the chair sells? How does that work?

DONALD CHADWICK:

03:08:18;23 Yeah, most designers that work with Herman Miller on I think all actually are on a royalty system. And they assign all of the intellectual property rights to Herman Miller. And Herman Miller then pays a royalty over a given amount of time depending on the agreement with the designer. And you're paid a certain percentage based on the sales of the chair for a certain amount of time.

03:08:48;23 And we're no longer receiving royalties on this chair. But I think those agreements obviously are proprietary information. But that's how we work. And that's how we maintain our businesses, through the royalty income.

DONALD CHADWICK:

03:09:34;24 (IN PROGRESS) --flexibility and the chair's able to flex because of this eight-shaped cutout that goes-- through the back and under the seat. So these are all out to move independently of each other. And it's sort of self-adjusting to the anatomy of the respective-- sitter in the chair.

BARRY HURD:

03:09:52;05 Let's turn the chair over again and talk about celebrating the...

DONALD CHADWICK:

03:10:04;10 Well, one of the evolutionary aspects of the chair was developing sort of a modularity of parts. And all of these chair can be completely disassembled with a simple tool, whether it's removing two screws up here to remove the arm pad or two bolts here that take the arm casting away from what we call a swing arm which attaches to the shell.

03:10:27;24 And then there's another screw here that attaches to the tilt. So if a part were worn out or something, it's very easy to fix the chair, to put

it back together. And that was quite a contrast to the more complex chairs that existed in the marketplace at that time. And in doing designing these parts, we wanted to celebrate their form and their function both.

03:10:55;11 So a lot of design detail was put into all these castings, whether it's this tilt casting, the swing arm, the arm casting, all of these parts are well integrated and can be taken apart and be put back together just like a toy in a way. It has a lot of toy-like qualities. And again, this was in contrast to a lot of the very mechanically evolved chairs that were particularly coming out of Europe.

DONALD CHADWICK:

03:11:31;07 Another new feature of this chair was moving the pivot point from basically centered over the post here forward that sort of mimics the knee joint. And we call this a knee tilt. So developing that knee tilt pivot point was unique for the chair industry. And what that provides actually is when you sit in the chair and you lean back, it doesn't lift your legs off the floor. So when this tilts down, you're pivoting here. And that enables your feet to stay flat on the floor. And we incorporated later on into the Aeron chair as well but in a different way.

DONALD CHADWICK:

03:12:24;29 As part of this program, we were scaling down the chair. Most chairs prior to this involved molded form with upholstery. Here we developed a shell that is self-adjusting and added very thin pads. So we scaled the chair down considerably, conserving material and being much more aware of recycling and the amount of materials and the appropriate materials used in providing maximum comfort.

BARRY HURD:

03:13:15;09 Tell us a little bit about the process of the design and the fabrication and how these little models play into that.

DONALD CHADWICK:

03:13:21;19 Yeah, well, this is a prize little model. It's one of a kind. And this comes closest to the real form of the full-sized Aeron chair. And this was done in the early '90s, part of our presentation. And it's an interesting model in the sense of how we made it. Actually, these frames, the back frame and the seat frame, these are little hand layup fiberglass parts.

03:13:52;14 We actually made molds, little mini molds, and laid this up out of very fine fiberglass and resin. So these are actual plastic shells, if you will. And these other parts were also fabricated out of other materials. And

this was with the base we cast one leg, made a mold, and then just repeated our self and we got the base made using the original part and making five of them and then hand finishing and painting.

03:14:29;06 And this pretty much represented the whole idea of the knee tilt mechanism the torsion spring that would be inside, the what's now known as the Pellicle. Now, this material is interesting because this was I got this at a sunscreen shop. This is actual sunscreen material.

03:14:56;02 And it seemed to be the right scale. And as we look at the actual chair, you'll see there's a very close resemblance to this pattern and the pattern on the full-sized chair. So this really became very representative of what the full-sized chair was to be. But this enabled us to really study out the form and then translate.

03:15:18;06 What we did with this is then we took these parts. We took them to a model maker who had the equipment to scan our little scale parts in translate that into full size. It's sort of a **pantograph** type but he actually had a stylus that followed these. And then he scaled it up four times. And we had brought him some roughed out wood shapes. And he carved them. And then we got those carved shapes, brought them back, sanded them, refined them, and made our first full-size parts. So this literally was grown off of this scale-model chair. It was an

interesting process of going through.

BARRY HURD:

03:16:13;29 ...how'd it get from there to there?

DONALD CHADWICK:

03:16:18;13 Well, I just explained that we took these small parts, took them to a guy who used a stylus where he runs over back and forth both directions. And while he's doing that, a machine is cutting our full-sized wood pattern. He's actually following the curves, but he's translating it four times. So you get the full-sized wooden version of this.

03:16:45;28 From there we make our fiberglass layups on the wood molds. And I think a lot of that probably is in the archive, some of those original parts. So this was very much part of our form resolution and getting to a full-sized prototype.

BARRY HURD:

03:17:08;23 Okay. Pull out the actual chair and tell us about some of the advancements on that and how that was so revolutionary...

DONALD CHADWICK:

03:17:22;14 Well, I think as you can see, the full-sized chair basically the profiles are very similar to the little scale model. As we got into full size, we

obviously had to translate something from a scale model into something that could be manufactured. And the major breakthroughs, this was originally these frames originally hand layup fiberglass.

03:17:53;25 And then we had this woven material. It wasn't exactly like this. But it was similar. And in order to hold it in place, we used an extrusion that's commonly used to hold screens in place, how you drive it down into a channel. That was our I don't know if those original prototypes are in your museum. But that was how we built the first prototype.

03:18:18;14 I wish I had some of those parts to demonstrate. But it's going from here to here is several steps. But in the production chair itself, what was once this extruded screen vinyl shape now becomes a molded plastic part. And the woven material's actually molded directly into this part. I may have samples of that. Would that be of any interest to show that separately?

BARRY HURD:

03:18:51;22 Yeah. Why don't we continue along and we'll...

DONALD CHADWICK:

03:18:56;15 And this part, when it comes out of the mold, is sort of shriveled up a little bit like a potato chip. And so it has to be re-stretched because when this is molded into the plastic part, it's stretched. It's pre-

stretched. And so when this is released out of the mold, it kind of curls up a little bit. So to put it into the frame, it has to be put into a fixture where it's stretched back in and it's held. I can show it better on the back here.

03:19:22;02 It's held in with mechanical screws. So it actually holds it in position. Now, this whole technique was unique and probably is still unique today in the manufacture of chairs. There's no other chair that's made in this very way where we have an elastic woven material molded into a plastic ring that's then placed into a structural frame. That became a whole new way of assembling chairs. That's the major breakthrough technologically of the chair. But the chair also exhibits a whole new tilt philosophy.

03:20:17;01 The chair also demonstrates a new tilt or kinematic motion growing out of what we had from the earlier Equa chair. This is more advanced version of the knee tilt. Again, the tilt pivot point is moved quite forward of the post. But the way this works in conjunction with the seat, since the seat and back are separate, the articulation allows this chair to tilt down and back at the same time.

03:20:53;13 And so when one sits and tilts in the chair, it enables you to keep your feet flat on the floor, again, reducing any kind of pressure point, which

is typical with a lot of chairs up in front here. When you lean back, this comes up off the ground this lifts up and lifts your feet up and puts a pressure point, which is an ergonomic issue, a health issue.

03:21:15;01 So that the Aeron chair was one of the first to introduce this kind of tilt or kinematic motion that allows you to go from upright into an interesting recline position. We also I think this was one of the first times people or manufacturers, we got this idea from motorcycles and bicycles was to take all the controls and bring them outboard.

03:21:46;26 And they're actuated through actual cables. And rather than hide the cables, we just allowed the cables to line up and just like you would on a bicycle frame. And, again, this whole celebration of parts with that we derived out of the Equa chair, we tried to be very careful the way we designed the forms of these parts and the way they integrated and again, the way they connected celebrated all the connections.

03:22:12;15 So wherever there's a part that's connecting you know, there's a fastener that's very carefully selected. And, again, we're celebrating the form and the connection, again, growing, you know, from the way Charles and Ray Eames designed a lot of their furniture.

BARRY HURD:

03:22:34;13 And can you tell us about the reaction when this came out was this for

everybody as well? This the democracy of seating was a part of this as well?

DONALD CHADWICK:

03:22:41;05 Part of this philosophy was to actually increase the availability of sizing to the user population. We felt that one chair could not do it all. So we actually came up with this idea of developing three different sizes so that we could have a chair that fit the 99 percentile, from one percent to 99 percent, which is quite a range.

03:23:12;13 And in order to do that properly and not be over mechanical with one chair that has all these adjustments, we decided we would develop three different sizes just like you have clothing in different sizes, shoes in different sizes. We felt that that made sense. And so this is a medium-sized chair, which fits the broader segments of the population. And there's a smaller and a larger version of the chair as well.

03:23:40;00 And that became a whole new breakthrough in terms of selling chairs. So everybody basically gets the same chair. It's just a different size. So there's no compromise in comfort or function. Everybody's getting the same comfort, the same function. And this was the first major program that offered that.

BARRY HURD:

03:24:00;13 And has this chair evolved over the last 20 years? Fifteen years?
Whatever the number.

DONALD CHADWICK:

03:24:04;24 Fourteen.

BARRY HURD:

03:24:06;08 Fourteen?

DONALD CHADWICK:

03:24:06;02 Fourteen.

BARRY HURD:

03:24:06;08 How has it evolved? Is there every couple of years they update it like
a car? Or how does that work?

DONALD CHADWICK:

03:24:11;15 Well, the chair has remained pretty much what you see today. What
was added and I don't have the lumbar pad on here. I could get one
and put it on. The only more recent addition is something called
posture fit. And that was developed out of some research with a
particular individual back in Michigan. And so that added another level
of adjustability and more precise lumbar support. So the posture fit
was the only major change or addition to the chair since it came out.

BARRY HURD:

03:24:46;27 A classic's a classic, right?

DONALD CHADWICK:

03:24:49;01 Yeah. Everything else is basically the same.

BARRY HURD:

03:24:53;20 Would it be fair of me to ask you to go through that chair and show how some of your basic principles are concretized in the chair?

DONALD CHADWICK:

03:25:02;19 Well, like the Equa chair that I spoke about earlier we, again, tried to scale the chair down. In other words, eliminating where in the Equa chair where we had a plastic shell, we now have an elastic membrane. In the Equa chair we also added an additional thin cushion. There was no need to do that with this membrane material.

03:25:32;09 So the whole idea of aeration, it went from a shell to an aerated material, which added not only the flexibility but the idea that it was self-breathing. And it added another level of comfort that just didn't exist in chairs before. So that was the major part of it. But in celebration of parts, again, we spoke about the way the parts fit together and the way they can be disassembled, showing all the different connections.

03:26:01;28 We tried to make them as much of these adjustments intuitive. If they weren't exactly intuitive, we put little icons on them like you would have on the stocks in an automobile where you're operating different controls. So each one of these designates its use. And we tried to make them as accessible as we could in the seated position.

BARRY HURD:

04:00:10;14 This chair carries your name, now, right? Is that what you get after three million years in the business?

DONALD CHADWICK:

04:00:13;16 Yeah. I wasn't really too anxious to do that. Although, my name had been used, in the first Herman Miller product, but it was Chadwick Modular Seating. So finally, when Knoll asked if they could use the name, I said, "All right." You know, well that's how I guess that made naming the chair a little bit easier, than going out and searching, and searching, and searching.

04:00:50;26 But we brought this program to Knoll. This was something where they didn't come to us, and say, "Would you do this or do that." We had already developed this idea, that the basic of the idea and what had transpired is, there was an individual from Herman Miller, who left Herman Miller, and then was hired by Knoll. And it was that

connection that enabled me to kind of get the door open, so that I could propose this new office chair idea to Knoll.

04:01:29;15 And really, conceptually, this chair the whole idea behind this chair, was to have something lower cost, but more importantly, a little bit simpler in the way it was put together, and the number of parts, and the adjustments on the chair. So it has less adjustments it's only one size. And it involved much lower costs, because there are less complicated parts, and yet provide equal comfort.

04:02:06;17 And Knoll did not have any chair like this, and they were looking for something that demonstrated this more of the aeration idea, and lighter in scale. This chair even is lighter in scale than the Aeron chair is, but still incorporates a lot of the similar qualities of celebrating all the parts, showing how they fit together the connections.

04:02:34;29 And so it's in a way an outgrowth of some of the ideas from the Aeron chair, but incorporating them into a composition that's much more affordable, and more easily producible well, now, I shouldn't say easier producible, because the Aeron chair is very easily produced today. But this goes together quite easily as well, because all of the modularity in the way the parts fit together.

04:03:07;10 If you want it, for instance, in this chair, if you didn't want the arm,

these bolts would come off and you would just have a shorter bolt that would connect on this inner surface. So, it enables the chair to come in different configurations. There's a fixed arm, or the adjust it has a very simple ratchet mechanism that enables you to adjust the arms on it. So it just tried to simplify some of the more complex solutions that there demonstrated on the Aeron chair.

BARRY HURD:

04:03:41;01 When did this come out?

DONALD CHADWICK:

04:03:42;19 This chair came out in 2005.

BARRY HURD:

04:03:45;05 And how are they doing?

DONALD CHADWICK:

04:03:46;13 It's doing fairly well. I mean, it doesn't have you know, you're not gonna do another Aeron chair. But from Knoll's point of view, it's a good successful chair for them.

04:04:01;19 And because of it's scale, because of it's lighter in scale, it's found I think, applications at home office, and smaller interior environments, where some larger chairs might not quite fit, or be comfortable within those environments.

BARRY HURD:

04:04:18;01 Now, is there any sensitivity, I mean, between different clients like this, when you have an idea?

DONALD CHADWICK:

04:04:22;02 There's a lot of sensitivity.

BARRY HURD:

04:04:24;06 And how do you feel comfortable talking about it?

DONALD CHADWICK:

04:04:26;24 I think that you have to school yourself in diplomacy. And that's putting it lightly. Well you know, the relationships in the case of Herman Miller, have varied over the years. And, I really can't explain them. It depends on their management at the time, and you get very close to a group of people, and then there're changes in management, so your starting over from scratch. And they may have different points of view, and different philosophies.

04:05:07;07 So, sometimes, that's inhibiting for the designer. And I've have gone through that several times. So you finally say to yourself, "Well, if they're not interested in working with me, I'm gonna find somebody else." So the matter of survival, you seek out other people. And, really that's how I got involved with Knoll.

04:05:30;27 Had it not been for a situation with Herman Miller, I probably wouldn't have approached Knoll. But I felt, in going to Knoll, there was no ethical problem. I mean, I was not working with Herman Miller. And you know, I had an idea that I thought was valid, so I'm gonna go show it to somebody like Knoll. And that's how the relationship developed. And there will be another product for Knoll coming out in June providing that the parts come out of the molds in about two weeks. But it's a whole different, it's not an office chair. It's a different kind of program.

BARRY HURD:

04:06:08;23 You can't talk about it?

DONALD CHADWICK:

04:06:10;06 I really shouldn't be talking about it until it introduced. Yeah.

BARRY HURD:

04:06:13;28 All right.

DONALD CHADWICK:

04:06:15;08 I mean, I've got all kinds of scale models, but I don't think I should be showing those either. Yeah.

BARRY HURD:

04:06:21;17 Have high hopes for it, I bet.

DONALD CHADWICK:

04:06:22;08 Yeah, yeah. But it's, again, it's not an office seating program. It's a different kind of a chair program.

04:07:43;02 No, no, this, actually this is very different, in that this material is not pre-stretched. It's stretched when it's put together. And that's also a different patent. But what's interesting, is the same company developed the patent for the capsulation, developed this technique as well. So is a couple of very smart people that understand how to work with this material.

BARRY HURD:

04:08:11;16 The other question is we talked before at Herman Miller, that they hire outside designers.

DONALD CHADWICK:

04:08:15;26 Yeah.

BARRY HURD:

04:08:16;06 You're independent, but you work with them. Does Knoll work the same way?

DONALD CHADWICK:

04:08:18;04 Yes. Exactly outside designers. And it's always been the history of the company both companies working with outside designers.

BARRY HURD:

04:08:28;00 Okay. All right. Take us through some of these exhibits, and, you know, what they are, and how they relate to the overall process.

DONALD CHADWICK:

04:09:02;07 Well let me start with this, since this is I think this kind of leads up. This was just a 2-D articulation model, that's just held together with push pins, or screws, or whatever it was, just to demonstrate movement the kinematic motion of the chair. And we did a series of these, to get and then this was translated into cad software. But we did it where we could do this on a computer today, boom, like that.

04:09:36;07 We didn't have that capability then. We had to actually physically build these little models. In fact this is stepping off the subject, but we'll come back to it later. There's an articulation model up there, that was done for the for the Knoll chair. That's what that one, so that this is just strictly 2-D but we could figure out whether the articulation and the motion was ergonomically correct. So that's what this is a study of.

BARRY HURD:

04:10:11;02 Okay. You said you could do that on a computer now. It was there anything lost by that? Does that method actually offer any

advantages? Making a physical... not at all? So that's a good example of that translation.

DONALD CHADWICK:

04:10:18;12 Not at all. Not at all. Not at all. I would have asked that question early on. No. The computer is a very good tool for figuring out all this all this motion kinematic motion. That, in terms of chronology this being an early just experiment with articulation, this is a very early experiment of encapsulation. And this is I mentioned earlier, about this Cascade engineering which is the molded plastic company in East Grand Rapids.

04:11:03;00 These are early experiments of putting capsuling, doing a ring injection molding a ring around a pre-stretched woven material. And this was one of many experiments. And this is one reason why it took a while to get the chair into production. 'Cause we were basically starting from almost scratch. And through these experiments, we finally arrived at a solution that allowed us to mold this carrier. And this is a later version, where we actually had the molded parts.

04:11:43;12 And we take, basically the same idea, incorporate it into a, what is now a molded carrier, that fits within the frame. So that's sort of the evolution. And during that process, we were testing in the Herman

Miller lab they are not only testing the strength of the Pellicle material, but they are also doing pressure mapping, where they attach sensors to the Pellicle and they actually have people sitting in this was hooked up to a computer, and they could see where the hot spots were.

04:12:24;16 So this was just part of that experiment. We went through a number of tests where we tried to validate how the Pellicle was could providing more comfort than say foam was, or some other material, how it spread the pressure points out. And you eliminated the hot spots, typically, where you have your hip bones, or you ischiatic tuberosities. That's the part of your pelvis bone that the strikes the seating surface. They're about this far apart.

04:12:59;01 And if you ever look it's in our concept book. We demonstrate that. But this is part of the real time testing of that concept. After we developed the chair itself, Bill and I had this idea, well, let's see if we can expand the program. And that's where we got involved in this rather than doing a separate seat and back shell, doing a singular shell with a woven membrane, both on the seat and back.

04:13:30;13 And we built a number of prototypes a sled based version. There was a, what's called tandem, where a number of these were put on a beam, like you'd see in an airport, or a waiting area. And there are

various bases. We even had a version of this as an office chair for a very inexpensive office chair where it, basically, just swiveled and had height adjust but didn't have any tilt articulation. But none of that came to be.

04:14:01;08 But as part of the process, you go as far as you can. You push as far as you can. And it's like asking for more, knowing you're gonna get less. But we asked for a lot. And we actually got more than we expected. So this, are a number of examples that of the process, that...

BARRY HURD:

04:14:27;04 And how do the little models play-in again?

DONALD CHADWICK:

04:14:30;24 Well these were the studies that were done prior to going full size, these little scale models. And like the office chair, we also studied this out as a single one piece. And this is how we work. We make a little mold, and then we take fiberglass cloth, and polyester resin, and we lay it up on her, just like you're making a surf board, or a plastic some other plastic shell. You take that off. You trim it, and you finish it. And you have a little molded plastic shell. And we made a number of the models that

way.