

Interview with Travis Gillum and Lara McGlaughlin

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Interviewer: Mark DePue

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DePue: (applause) Thank you, Eileen. We’ll keep this very short because it’s all about LifeFormations and what you two have done in terms of creating these incredible figures that we have throughout the museum. I know there are people out here in the audience who are thrilled to have an opportunity to ask you all kinds of questions about how you created these things. So, a very quick introduction for both of you.

Lara McGlaughlin... I’m going to read from the little bio that I received, because I think it’s most illustrative for you. “Our secret weapon when it comes to incredibly believable and realistic figures, Lara’s team is why Life, L F Creative, is among the top three in the world for lifelike figures.” That speaks volumes. I should mention that you got your bachelor’s degree from Columbus College of Art and Design, that you have two parents who are artists, themselves—you didn’t fall too far from the vine in that respect—and that you received, in 2006, the Outstanding Achievement Award for Museum Attractions for...the Abraham Lincoln Presidential Museum (applause). And well deserved!

Travis Gillum... I'll read a little bit from yours as well.

Gillum: (laughs) Oh, boy.

DePue: It's a little bit different. "A gear head who loves media, Travis brings animatronic characters to life through purposeful robotic programming, creative audio tracks and interactive design."—we're going to hear a little bit different twist on your career when we talk about this tonight—a graduate from the Bowling Green State University." You didn't travel too far, once you find full time employment; you didn't need to. And, in your case, in 2005, the Outstanding Achievement for Museum Attractions, the Health Royal Interactive Exhibit Avampato Discovery Center.¹

Gillum: That's close enough (laughs).

DePue: Close enough, okay. Now, we didn't come to hear about that. We came to hear about the incredible figures we have here, so I'll turn it over to both of you. Thank you.

(applause)

Gillum: Good evening.

Audience: Good evening.

Gillum: I think you're going to see some pretty cool stuff tonight. We hope we answer a lot of questions about the figures and the entire process that you see around the museum here. Like he said, this is Lara; I'm Travis. During the project—just a little bit to help you understand where we fall into this process—Lara, for sure, carried most of this project on her back (laughs) for the production side of things. She was involved in everything from the beginning, from sculpting to the...sculpting of the heads, the bodies; she was involved in the figure finishing, as well as the costuming of the characters. She had her hands on almost every one of those items at some point, physically, personally. But she also led a very large team to help produce these things. She's got lots of stories to tell tonight and is going to show us some really cool stuff.



Lara McGlaughlin and Travis Gillum during their presentation at the Abraham Lincoln Presidential Museum in June 2015. Note the several hairless busts of Lincoln on the table.

¹ Housed in the Clay Center for Arts and Sciences in Charleston, South Carolina, The Avampato Discovery Museum is an accredited American Association of Museum, where science and art come together in a rare combination. (<https://u-s-history.com/pages/h3191.html>)

I, on the other hand, when this was in-house, was actually project managing another project that had nothing to do with presidents. It actually had to do with dinosaurs and large, over-grown plants that attack roller coasters. (laughter) That's the other side of what we do.

Just a quick background of LifeFormations, obviously this is one of our passions; this is what we're known for, especially in the museum world. Hands down, this is one our, probably, marquee projects and still is today, no doubt. But on the theme park side of things, the themed attraction world, we're known for very wacky, crazy characters and also animatronics. So, everything that you see in the museum, we can also create that and bring it to life with motion, whether it be pneumatics, electronics, a whole myriad of ways of making them move. And then also, we also do props. We do theming, set work; we do interactive work now.

We have two offices, actually, one in Bowling Green and one in Cincinnati. Both of them are a pretty decent size. We've got a good-sized team at each location. The Bowling Green office actually focuses more on what you see here, with the figures throughout the museum, and then our Cincinnati location, they look at more of the wacky side of things. And we use the same processes; we apply all that to our themed elements, our interactives. We took our knowledge from the figure side of things and just have grown it over the years.

A lot of people, now, prefer to have a turnkey project, where you might have a figure or an animatronic talking tree, whatever it is. Sometimes they want that with a kiosk or some set work or theming around it. That's kind of where we're from.

Before we actually get into the process, we just wanted to say, we're absolutely flattered to be here. Today was very eye opening for us. We don't always get to go out and be in the museum as much as we got to, to spend time today, which was incredible. It was very flattering to see how people react to these characters, how powerful they still are today, and watch the reactions. It was also very flattering for us from a marketing side of things. We have a marketing team here we didn't even know we had (laughter). You just have to say the word, LifeFormations, and we saw lots of staff (laughs), their eyes glow and popped right up and wanted to talk to us and had lots of questions, lots of stories. Again, that was very flattering to us, to know that we have people out here that are marketing our work at such a level to millions of people.

Tonight we going to go through the process of how to create the figures that you see in the museum. We're going to hone in specifically on the characters from the museum. We use a different process for different projects and different things, but we wanted to stay true to what is out there, so you can completely understand what we went through to create those figures. It's very informal. It's definitely not something that we stand up and practice on a

daily basis, but it's a process that we doing daily. We're going to walk right through it, step by step. We have lots of things to show you. We're going to pass some things around to the audience. [Some] might gross you out a little bit, but I think you're going to be very intrigued to be able to hold an eyeball or something like that. So, we're going to pass some things around. We're also going to bring some people up on stage and demonstrate some things for you. It should be a lot of fun, and then we're going to open up to questions at the end. I'm sure there will be lots of questions.

We're going to get started here with the process. Really, another flattering thing was to be part of this original production, for sure. When Bob Roger's company came to us and said, "Hey, we want you to be part of this," they had lots of designs they'd already been working on for probably a year?

McGlaughlin: It was a year that they went through a process of doing the designs, doing the swatching of the fabric, the poses, everything to make sure the story was told in a dramatic way, an accurate way.

Gillum: Yeah. Lara actually is holding... She's going to come over here so we can put it up on the camera. She's holding just a few things that we pulled from... And she has boxes and boxes (McGlaughlin laughs) of research and reference that was provided to us. It was almost overwhelming how much she had to work from...which is a good thing. It's very difficult when you sit down to start to sculpt these heads and have to nail a likeness, to not have enough reference. They had an amazing amount of reference. A lot of times they would start with a photograph, and then they would move to these sketches.

McGlaughlin: Yes, because there obviously is not every angle...photo of people from back in that time, so they had to do sketches in order to fill in the details from a sculpting standpoint.

Gillum: You can see they had measurements; they had them from different angles. A lot of times, we had to look at these, obviously, for expression. What was the intent of the scene? What was the expression that we were going for? There were still some challenges, even when you have this much reference, though, because we're trying to nail this so perfectly that we actually, in the midst of this project, kind of invented a little process to where we could take photographs of the sculpts, and we'll show you some of those in a minute, during the actual sculpting process.

But as we were working through this, we actually got to a point where we needed it to be so precise and to prove that we're close to the reference that we started to take photos and put them through a digital process, where we actually superimposed them over these references, to see how close we were getting to the actual sculpt, referencing the sculpt and the reference. We actually started to find that there were even some discrepancies in these different views of sketches, when you start to compare a profile to a three quarter, to a front view.

No matter how good you are as an artist, it's difficult to replicate all the perspectives when you start to turn a head and try to sketch it at a different angle and try to hold the same expression and things like that. There was a battle there where, yeah, we're trying to match a sketch as closely as possible, but yet there are some inconsistencies with the sketches that you have to account for and understand, that yeah, okay, it looks a little different in a three quarter view, but if we were to actually change the sculpt to look like that, something's going to start looking weird when we turn it to the profile.

Lara had to wrestle through all that. And through all that, we actually kind of developed our own process of being able to superimpose the sculpt and the sketches and kind of do a live fade between the two, real time. And they can check as they were sculpting. It all starts with all this reference. We wanted to show you some of this, so you could understand kind of the blueprints that we were given. You'll see more of that as we talk about the process for different areas. The head sculpts, specifically, they were very detailed, especially the ones for Lincoln. I think at one point they even had created a poster. I don't know if it's still available in the gift shop...



Lara McGlaughlin checks out a bust prior to beginning to transform it into a recognizable figure during her presentation to an audience at the Abraham Lincoln Presidential Museum in June 2015.

McGlaughlin: Yeah, there was a poster that showed every angle, with directions of his eyes turned a little this way, and one eye's higher, and one eye's lower. Just all his little quirks we're called out specifically, so we wouldn't miss a single detail.

Gillum: Yeah, there even zoom ins and close ups around the eyes, the detail of the wrinkles and the texturing there, a lot of research given there.

Lara sat down and studied that for quite some time, (McGlaughlin laughs), large boxes of them; she has filing cabinets of reference.

And then what happens is... We start with the head. It's one of the most difficult pieces to perfect and get approved and through production. It gets probably almost the most amount of time devoted to it...

McGlaughlin: Right.

Gillum: ...because you have to be so precise with it in a project like this. They start with an armature. This looks a little scary, looks like it's from Mars. We have just shelves of these. There just a generic armature. If it's a child, sometimes we'll start with smaller one. And that's what they'll use to then start to lay their clay on, and each artist kind of has their favorite armatures.

McGlaughlin: That's great, yeah.

Gillum: They just keep getting used over and over again. So, this may have been at one point, a football player. It could have been Abe Lincoln, who knows? They get reused over and over; they just peel the clay back off of them. But the magic starts when they start to lay some clay on there. This is a clay called Sculpey and Lara can tell you, probably, the differences between some of the clay and why we use the Sculpey.²

McGlaughlin: We like the super Sculpey. It's a craft clay that you can buy anywhere. We like it because it's kind of got a rubbery texture to it, so it feels a lot like skin, already. And so, when you're going and doing the texturing on it, it can be textured in a way that just kind of responds and looks more like real flesh and the color helps too, just a little more fleshly. One of other things about it is because it's a craft clay that you can bake in the oven, when we get the surface the way we want it to look, we can bake the surface lightly to protect it so that when we move over to do the molding phase, we're not as likely to damage it at all in that process. So, that's one of the advantages of this clay over other clays.

Gillum: I'm going to pass a little piece of this around. So, it comes in little bricks like this, little chunks and within, sometimes, forty hours...

McGlaughlin: Hopefully.

Gillum: (laughs) Yeah, that's what we push for. They can have something that looks close to this.

McGlaughlin: That's right.

Gillum: It's pretty amazing to watch the process. It'll start with just big globs of clay and then after about fifteen, twenty hours or so, you can start to see where it's heading and see that it's heading to a likeness. It's a pretty incredible process. The head we brought here tonight, this is a project that we're working on right now, so this is a head that's mid-process. What we do is we'll rough sculpt it in and we'll get it to a point where we think it matches the references well. It's not completely done yet, it still has a smooth texture to it, not a lot of wrinkles or any details. We'll put this in front of the client for approval. We may fuss with this, sometimes, might go right through, might get approved right away. Sometimes it could be as many ten revisions.

McGlaughlin: That's right.

Gillum: It just depends on how accurate we are and also the client's perception of what they think it should look like. Even if sometimes we think we've nailed the reference, and we show it in an overlay situation—and say, “Look, it matches

2 Sculpey is the brand name for a type of polymer clay that can be molded and put into a conventional oven to harden, as opposed to typical modeling clays, which require a much hotter oven, such as a kiln. (<https://en.wikipedia.org/wiki/Sculpey>)

the photo or the sketch,” they sometimes feel, I think it should just be a little heavier in the cheeks. It may not look like it in the photos, but that’s how we remember this person. So, they’ll go through that whole process and then what happens is, once we get this approved at this level, they’ll go back and do some final smoothing and then we’ll go into a texturing and detail phase. We’re actually going to move this over to the table and Lara’s going to show you a little bit of that process. We’re going to talk through it. She’s going to actually do a little bit of texturing and wrinkling while we move on to talk about some other things and you can actually watch that going on up here. But, it’s pretty amazing what they do and the tools they do it with. I let Lara talk about that a little bit.

McGlaughlin: So, like this one isn’t quite as smoothed out; you can see here, there’s areas that aren’t smoothed out all the way. Normally we would have all that smoothed out, and we tend to use like a raking tool or just our fingers. But in areas, where it’s really fine and hard to get into, a lot of times we’ll use a small brush with some solvent. That’ll help smooth out the clay and get it a little bit nicer. But when it comes down to doing the texturing, one of the favorite tools is this very weathered, sad looking piece of Saran Wrap. But the more weathered and sad looking it is, the better it is. I keep them for a very long time, because they’re precious. And so, what we’ll do is, kind of put it up here and you can get it to secure to the clay with a little bit of stippling. And this is how you do a finer pore texture than on the lips, then you go in and start to draw in some of the finer wrinkles on the lips.

Gillum: This was very important on this project, especially, because we knew that the audience was going to be so close to these figures that we wanted to make sure every one of these little details was in there and it just adds that much more to the realism in the finished product.

McGlaughlin: And so you can see you can go back and, you know, finesse it more. And we have different textures of brushes like this one is a coarser brush and this one’s a finer brush and it just depends on the texture of the person’s face. Like in Lincoln’s case, there were very coarse brushes and holes and lots of wrinkles and stuff like that. But on Mary, it was much gentler. And so the same thing with the forehead lines where you go through and can kind of draw in the wrinkles. And then sometimes you’ll go through and soften them a little bit.

Gillum: And sometimes they just have to make that up as they go. We don’t always have the luxury of having the reference we had for this project. So, you know, for this, they knew where every wrinkle was to be placed. I mean, all you had to do is pull out the reference and there it was.

McGlaughlin: Yeah, some of the wrinkles were actually done when we were doing the video overlay to make sure, especially on Lincoln that all his forehead wrinkles and his wrinkles around his eyes lined up with our reference.

Gillum: Yeah. Sometimes they only get one photo that's, you know, postage stamped size for some projects. Some things don't exist or we just don't have a lot of reference. So, a lot of times, we'll make some of that up and they do that as they go and Lara and the team, they've done that so much over the years that they have a good feel for it and can make it look realistic and kind of shoot from the



Travis Gillum and Lara McGlaughlin enjoyed their chance to explain the creative process to the audience of volunteers and fans at the Abraham Lincoln Presidential Museum in June 2015 during the museum's 10th Anniversary Celebration.

hip even if they don't have the reference. But all that's very important from a painting process, too. We'll talk about that in a little bit, but if all that texture isn't there, it's tough for us to get the paint to adhere to the skin, as well. We'll talk about that in a little bit. This part of the process is really, really, really important for us to make sure that all that stuff is in there, because you only get one shot at it. It all has to be in there and we can't go back later because what happens next is we move into a molding phase or sometimes they'll call it tooling phase and that's where once this is completely finalized we go in and put this texture on all the wrinkles like Lara said, sometimes we'll run a heat gun over this Sculpey clay and that gives it a hard skin, finished to it. We even have to be careful with that. If you overheat it, it'll crack the sculpt, and then you're in trouble. Once that's all done and it's pretty much encapsulated and set and ready to go, we move to a molding or tooling phase. You've got one shot at that. If you mess up the mold of that sculpt, you've got to go back and resculpt it. So, it's very important that this step, this stage is completed successfully.

For the Lincoln project, there were several occurrences of...like Abe, for example, where he was a very similar age, but we just maybe needed a little bit different expression. Rather than trying to go through the pain of resculpting the entire head to basically the exact same thing that Lara or the team had just created, we went with a little bit different process, to try to save some time and effort there, also to keep the accuracy between the heads. So we did what is called a "case mold" off of the original sculpt. Once a sculpt was finished—like Lara's working on over there, out of Sculpey—we would create this case mode. Lara will talk a little bit about how that is created.

McGlaughlin: Yes, what we wanted to do is go a different process. Instead of using the Sculpey, we wanted to make sure... We had our master Lincoln that we did out of the Sculpey, and once we created that, then we did a two-part mold. This is a silicone rubber that comes apart in two halves. The purpose for that was that we have this type of clay here that we can melt down and make a

liquid, and then when it cools off, it becomes hard, but we can still use a blow dryer or solvents to texture it, change it and that kind of thing.

What we did is we had this mold that we pulled all of our Lincolns that were the same age bracket, like we didn't do the young Lincolns that way, but we did all the older Lincolns this way. That way we knew we were starting from the same basic structure, and all we were doing were tweaking expressions. Like in this case, he's a little rough because he hit his nose (Gillum laughs), but you can see that what we were going for here is changing the angle of the neck. It wasn't as much about a facial expression change as it was about changing the pose of his neck in order to get him to be in the expression that we needed him to be in. That was our way of keeping consistency and not having to go back and rework every single detail of him eleven times.

Gillum: Yeah. And the nice thing about this is, as you know, once we have this, we could keep pouring more hot clay into to make the next version from that. It was a little tougher to work with.

McGlaughlin: Yeah, it's a little harder to do the texturing on this. This one's more... You still use that amazing Saran Wrap. I worked a lot with a blow dryer, where you actually kind of get the clay almost liquidy, and then you're sculpting with it in liquid, and you have to wait for the clay to cool before you pull the Saran Wrap off, or you just have a gooey mess.

Gillum: Yeah. It's not ideal. It takes a little bit longer than the Sculpey clay that she originally sculpted the heads out of, but it still saved an enormous amount of time, going in and re-sculpting every head and molding.

McGlaughlin: Yep.

Gillum: That's what we call a case mold. That's not how we typically do things. Like I said, it just depends if we've got a lot of the same heads or near to the same head structure that we're trying to replicate. But once we have that, and you have it in this form, then we go through the same process that Lara was just going through over there. We make our modifications to it, and then you go back and you texture, and you put all the wrinkles and stuff in. Then we move to a different type of mold. This is our permanent mold. This is what we call a perfect tool mold.

McGlaughlin: Right.

Gillum: It's a two-part resin. We can zoom in on that, catch some of that. But, it literally... When he zooms in there, it catches every little detail, the wrinkles, the texture of the skin that Lara painstakingly put in (McGlaughlin laughs). Literally, this is just a reverse of the head. So, that actually is created by laying this head down, building up the clay wall around it, and then pouring... This actually starts as a liquid; it's a two-part liquid. Then we put some reinforcement in it with some fiberglass resin. Again, you get one shot at this

because, if they mess up this the sculpt that's laying underneath this that they're molding, we have to start over.

This then hardens. We do the front and back typically, usually it's a two-part process. We try to find a good point. We call these our tooling lines, and we got to watch for what we call undercuts, where you don't want to mold behind the ear, you want to mold out at the edge because, if we mold behind, they have a hard time pulling this mold back apart, once we cast the head out of there. They're very careful about where they put those tooling lines and parting lines. Then what happens is that mold... Once we have the outer casing of the mold, we create a core.

McGlaughlin: This is done by... We roll out clay the thickness that we want our rubber to end up being, and that gets laid in here—(McGlaughlin to Gillum) Hand me one of the Sculpey pieces—Usually the thickness is really similar to this. It might be a little bit thinner than this thickness, but we would lay this in here and cover the whole surface of the mold with it on both sides. Then we put it together and then... Before we put it together, we make this metal armature with these pins. These pins will make sure that this stays right where we put it. So, after we lay the clay and we create the armature, we put it together. This is a two-part liquid that we mix together. It's a urethane that we pour in, and it creates what we call the core. This makes sure that the silicone stays the same consistent thickness every time.

Gillum: (talking to McGlaughlin) Want to lay that in there?

McGlaughlin: So if something should happen to Lincoln (Gillum laughs) and he needed a new a face, the old face can get pulled off, and a new face can be put on the fiberglass shell that's inside him as a support structure, and it should fit perfectly the same as the last one did.

Gillum: Yeah, so once we have this perfect tool mold, we can pull hundreds of casts out there. Basically, it comes down to, how well does the mold last through the casting process? We can get hundreds of casts out of here, as long as we're careful with the mold. We have a very large basement full of molds (McGlaughlin laughs), we call our dungeon. We have hundreds and hundreds of molds in our basement from every project we do that has a character with a silicone skin, at some point there's likely a mold for that.

We have a huge library of molds, and we have clients that will call us for even just generic projects. "I need a soldier that's a thirty, forty year old male. What do you got for heads in your library?" We just call up a bunch of photographs of those finished figures, and they can go right down the line and pick out the head that they would like. Then we just go down in the basement, find that mold, and we pour the skin from that mold. So, we have a very large library built up over the years. But, for this project, everything had to be built from scratch. We used nothing from our library; everything had to be custom. That's the molding process.

Then we move on to the skin that Lara was referring to. (talking to McGlaughlin) I'll let you hold him up; you've spent a lot of time with him.

McGlaughlin: That's right. (laughter) So, from this you can tell the thickness I was talking about, that that's the thickness of the rubber, and you can see inside is the fiberglass structure that supports the skin. If we peel this off and were to pour another skin, it would fit perfectly on this. When the silicon gets poured into this mold—it's also a liquid that you pour in—and you let set up overnight, when it sets up, it comes out like this. But, then it has no structure; it's still on this. Then we make this slice here, and that's how we're able to peel it off this core. We set it back in the mold and then create this fiberglass shell, which is a fiberglass mat with a fiberglass resin that we lay through the neck hole and also through the head hole.

Gillum: (laughs) We affectionately call that the "hood" (laughter). Open his hood, Lara. Yeah, and then once that's cast, like Lara said, it's takes about twenty four hours for this to set up, depending on what type of silicone it is. If it's an animated figure, we might use a different silicone, if they had some movement in the face. It just depends, again, on what kind of character. But you can see, we actually tint the silicon because it doesn't really have this color to it.

McGlaughlin: No.

Gillum: We can order it that way. We'll put a base color in the silicone as we cast it, based on where the final skin tone will ultimately end up. We'll talk about that in a little bit. But, this is just our base flesh color. This may vary in shades, depending on the character, the final product.

Then when it comes out, they'll be a lot of casting lines, you know, these parting lines we talked about on the mold, that we have to very carefully place. They always leave a line, a casting line, when we pull that mold apart. So, that's the reason we try to keep those parting lines to a minimum, because it's not easy to match this silicone once it's set in this more rubbery state. They have to go back in and grind and patch and do all these touch ups to the parting lines to make those go away, so you don't see those when you're close to the figure. That's where this goes next.

And then we get to the fun part, when it actually starts to look like a human. We start to lay down the paint. That is actually a bust of Mary. What scene is that, Lara, do you know?

McGlaughlin: I think that's when she's with Willie on the sick bed.

Gillum: Okay.

McGlaughlin: So, it's in the bedroom.

Gillum: So, this is a piece that we have left over from the project, a relic (laughs). First of all, it explains how painful the process can be sometimes. We started to paint this, and it wasn't what we wanted.

McGlaughlin: Right. This one, because it is the scene where Willie is sick, and it's a sad situation, they didn't want the rosy cheeks and the flesh look. They wanted a pale, very somber, very sad and worried look. This just doesn't cut it. It's just too warm and too cheery. So this is our reject.

Gillum: Yeah. So, it sits above Lara's desk and stares at her every day (laughter). We walk by and go, "You know how much money that was?" (laughter) But, no, it's part of the process. It's an artistic process. There's going to be things that are hit or miss sometimes. We're not stamping out widgets every day. Every day we're creating something new. It was something that got missed along the way. It happens.

McGlaughlin: And once you put it down, you can't take it back.

Gillum: Yeah.

McGlaughlin: You can't ever make it lighter than what it was. You can start pale and keep making it darker and darker or brighter or whatever, but you can never go back once you've done that. So, we try now to always err on the side of too light or too pale, and then we can always tweak it, based on what the client is asking for.

Gillum: Yeah. So that painting process, it's what?...four or five steps, Lara, typically?

McGlaughlin: It varies. But yeah, there's a basic... Like you do like a basic brown wash, a basic yellow, a basic blue, and a basic red, and then there's tweaking in between there.

Gillum: Then you drop in freckles. All those little details get dropped in at that point.

McGlaughlin: On the skin tone and all that.

Gillum: Then, once that process is done—which takes typically, what?...four hours, depending how many parts you're working on at a time. We try to assembly line that a little bit. If we're painting Mary's bust that day, you might see some feet hanging there next to it, some hands, maybe another head. So, they try to assembly line a little bit.

Then we move into a little bit more of a finishing stage. You want to take that over there, Lara? Actually, I forget to talk about these earlier too. We'll talk about them as well. But there are some things we do, once it comes out of the paint process, to move it into more of a finished state. Lara's going to show you a couple of things. Now this is the part that might gross you out a little bit (McGlaughlin laughs).

McGlaughlin: One of the things we do is we'll put the eyes in before we put eyebrows on. So this part's already been cut out, but you can see, this has no foam in it. Some of the heads will have the fiberglass shells, like the ones in the plaza all have the fiberglass shells. They have holes cut out of the fiberglass, and you go in from the flap in the back of the head and mount the eyes that way. In this case, since she wasn't in an access area where people could touch them, they would

have this urethane foam, which you can see down here inside. So when you're going to mount the eyes, you have to dig the foam out, and then you can backfill with a little bit of clay so that the eye doesn't sink **too** far in. But you set the eye.

Gillum: This is where you grit your teeth. (laughter)

McGlaughlin: This is the worst part. (Gillum laughs)

Gillum: Would you like to put your hair over your shoulder? There you go.

McGlaughlin: It's hard to see what I'm doing, but that's the idea.

Gillum: And the eyeballs, we have several different grades of eyeballs that we use, depending on the character (laughter). I would say this is one of higher grades.

McGlaughlin: Yes, yes. The one that I put in tends to be the level we sculpt with. It's a plastic eye. It's more like a doll quality eye. These end up getting destroyed in the sculpting and molding process, so we don't tend to sculpt with ones that are this level because we don't want to ruin a good set of eyes.

Gillum: Yeah. You can see there's veining on them. We can get different levels of veining. We can tell them exactly how much veining we want on the eyes, exactly the color. We can actually send a reference photo of an eyeball, and they'll match the center of the iris and pupil, the whole nine yards. We can even specify the size.

McGlaughlin: All the eyes in Lincoln museum are custom painted. There were spec'd out that way, where they were custom called out and painted by hand.

Gillum: And you can see the difference between them. The one I'm holding is a lot more detailed than the one that's in there. But, like Lara said, the one she popped in the head here is actually a stunt double that gets used in our molding process and sculpting process, like these here, where we're not too worried about those, if they get destroyed. I'm going to pass this around. (laughter) But I'm going to keep an eye on you, so we don't lose it. There's also some teeth that we have to deal with sometimes, if we've got a big smile. The debate scene...Right, the debate?

McGlaughlin: The debate scene, Stephen Douglas has teeth in him.

Gillum: That are exposed, yeah. So it just depends on the expression. (speaks to McGlaughlin) I'll hold these up over here. They can see these.

McGlaughlin: Those are the same type of teeth that are in the sculpt over there, that I was texturing on.

Gillum: Let me flip this over. So, if you need some teeth, you could just call Lara there, and they'll set you up (laughter). But, typically, we have to deal with this at the sculpt phase. I kind of skipped over this when we're talking about

the sculpt, but a lot of times, the team will actually stick these teeth in the sculpt. Right, Lara?

McGlaughlin: Yes—just like over there on that sculpt—because everybody’s teeth are unique, and it affects the shape of your mouth. Some people’s teeth are farther forward, farther back, higher up. So we can order a variety of sets that are bigger and smaller and have different shapes to start with, and then we can also place them in a way that’s unique, to say, that’s their teeth.

Gillum: Yeah. I’ll pass these around. Again, we know how many are on here (laughter). We’ll make you smile when you leave. Ultimately, a lot of times when we place them in there, this becomes part of the mold and actually, ultimately gets cast in silicone. Sometimes we’ll leave those as silicone and just paint them and treat them to look realistic. Other times we’ve actually gone in and cut those out.

McGlaughlin: Traditionally, what looks the best is to go back and take the mold... Like Travis had mentioned earlier, you can tint the silicone the color you want. So we’ll actually tint the silicone the color that we want the teeth, and then we will pour just the front part of the face, with the core, to do the teeth section. Then we go back to the silicone and cut the teeth away, cut the teeth in the white and glue it right back in to match up, so that the silicone of the teeth is white, and the silicone of the head is a flesh color.

Gillum: Because you could never get the silicone flesh color to be white enough to be the teeth.

McGlaughlin: Right.

Gillum: So you’d have to go back and replace them.

McGlaughlin: It just wouldn’t have the same level of realism.

Gillum: Yeah. And sometimes we’ve gone back in and actually the teeth like we’re passing around, in some instances. But they have the ability to make even the silicone ones look very realistic.

One other thing while when we’re talking about the painting process...
Lara, you want to talk about this a little bit?

McGlaughlin: Yeah. This is something that we do beforehand, where we make up a sample sheet, so we’d show different levels of flesh tone. We have a lighter shade, going to a darker shade. And if we were doing an African-American skin tone, we would have different shades of African-American. Like when we were doing Frederick Douglass, they were very particular about a shade of mulatto that they wanted. So, we had to do several samples for them, to get the right shade of skin tone for him.

Gillum: Yeah. Literally it would become, “Oh, use C4, C5,” and it just got referred to that way, and the team just had lots of these chunks of skin laying everywhere in the shop. They’re these little paint charts, if you will, very different than

what you find at Sherman-Williams (laughter). We have lots of those around the shop now that we use, for references on projects. But that was a way for them to kind of hold it in their hand and go, “Yes, this is what we want.” Or hold it under some lighting.

McGlaughlin: Or match it up to someone at the office.

Gillum: Yeah, yeah. If you look at those real close they actually have... If you look at them, there’s actually some variation on those, just as if we took a snapshot off of somebody’s arm or off the side of their face. That detail’s in there.

The next step, which also looks very painful (both laugh), is we have to at some point put the hair on these figures. That can be anywhere from eyebrows to facial hair, beards, mustaches. When it comes to the facial hair that’s done a little bit differently if it’s very short, if it’s supposed to look like maybe a 5:00 shadow. What we’ll actually do is take some sand—of all things—and we actually. In one of the last layers of the paint process, they’ll lay that sand on the face to create that 5:00 shadow. It gets embedded right in one of those layers and looks like a 5:00 shadow. We can use different colors of sand to get different colors for that. But when it comes to the eyebrows and some of the hairing on head, we have to poke all that. So, this is one of the processes that you can appreciate for sure when you’re watch our team do it. I’ve tried to do it (laughs). I can do it for about five minutes. We have some people on our team who have been doing it for what, Lara? Linda’s been there twenty years?

McGlaughlin: Yeah.

Gillum: We have one team member that’s been there twenty years, and this is what’s she’s done for twenty years, is poke hair.

McGlaughlin: And she loves it!

Gillum: Yeah, and she loves it (laughter), not me! (laughs) It’s very intense; you can see, Lara actually took the hair and cut it off the wig. She’s poking it into the skin, one hair at a time. Eyebrows take about how long, Lara, typically?

McGlaughlin: We also say the first one takes fifteen minutes and the second one takes forty-five because you have to match that in symmetry on the opposite side. [That] takes a lot of tweaking. So usually you can do the first one very quickly, but then to come back and make it identical is the hard part.

Gillum: Yeah. So, anywhere, again, where the audience has ability to get very close to these figures, we want to make sure that hair looks like it’s growing right out of that silicon. So, your eyebrows, your facial hair, all of that’s literally poked in a hair at a time. [It’s] not just poked in in any random order, Lara’s actually doing that at a certain angle, because that hair has to lay correctly. If she doesn’t poke it in the right angle, she’s going to have crazy eyebrows on Mary Lincoln. (laughter)

McGlaughlin: Right.

Gillum: It'll be very long. You can see that right now, they're not worried about the length; they're just worried getting it poked into the skin, get in kind of the right vicinity and shape, overall, of the eyebrow. And then they'll go back and trim that.

When it comes to the actual hair on the head, depending on the hairstyle, that will drive how much of that hair is poked, versus glued or like a partial wig or toupee. There are certain situations where, if we don't have to poke the hair, we're not going to do that. Sometimes they'll just have the part poked. If there's a part in the hair where you can see where it would actually be coming from the scalp. Then as that hair moves out, if it's thicker hair down along the sides, that would become a wig. Frederick Douglas, he'd be mostly wig, right?

McGlaughlin: He has a lot of wig because of the volume of hair that he needs. So for us to go through and poke hair, really thickly, is too difficult because you'd start to tear the silicon apart. When it comes to someone who has very full head of hair, the wig is the best solution. Then we just do the poking around the hair line. Then on the eyebrows here, after we get this done the way we want it to be, and we come back and do some trimming...

Gillum: So, if any of you want to stop at the table tonight before you leave (laughter), Lara can help you out.

McGlaughlin: Yeah, we'd apply a gel to this and then take a curling iron that is a variable speed curling iron. Because this is a synthetic hair, it can burn pretty easily. By putting a gel, a hair gel, on it and then having it adjustable, when we can turn it down to a really low setting and lay this down flat, it'll actually stay down, and we'll be able to bend the surface without frizzing the hair.

Gillum: Anywhere from... I would say the most we've spent on a head hairing, about sixty hours, eighty hours?

McGlaughlin: Sixty or eighty. Like the slave dad is all poked; his whole head is poked.

Gillum: Because it's so short.

McGlaughlin: Because of the shortness of his hair. So, I would say he was at least sixty hours to do his whole head.

Gillum: Yeah. It's pretty intense, definitely not for me (both laugh). Then, in terms of the types of hair that's used, Lara, do you want to speak about that a little bit?

McGlaughlin: Yeah, we do tend to use synthetic hair a lot. It has a longer shelf life than human hair, and human hair tends to lose its hair style. You'd have to go back and do a lot more curling. It does have more color variations. Sometimes we do need to go to a human hair. I believe, actually, Mary's and Lincoln's are human hair for that reason, because of the color matching that we needed to

do. But we try to stick with synthetics because they tend to last a little longer; the style stays more permanent.

Gillum: That is kind of what the characters have to go through, once they get out of what we call the messy stages of production. They go into the finishing area, where they get all the hairing, the final flesh tones, the eyes, the teeth detail, those things. Everything we've talked about so far focuses on the head. You can see how much goes into the head because you have to deal with the hair and all those other things.

Then at the same time, while all that's going on, there's a body being produced somewhere in the building as well. Which is kind of like the *Wizard of Oz* and the poor scarecrow, when he's all tore apart all over. It all comes together at the end, but if you were to come into the shop mid-process, it does look a little scary. But somewhere else off in the distance, in the shop, there's a body being dealt with to go with the head.

Again, we had lots and lots of reference for this stuff. (talking softly to Lara)—Hold this over here. Then I've got to pull off the eyes that too much fun (both laugh)—Yeah, we have lots of reference, just like we do for the heads, right down to shoulder sizes sometimes, neck sizes. Sometimes that's all laid out for us ahead of time to work from, so the team would have to sculpt to this spec sheet, provided by the client.

Sometimes it works the other way around. They say, "Ah, we want the figure to be six foot tall, 180 pounds. You guys figure out the rest, fill in the blanks." We do that, and then we just build the costume from that, once we create the body. In some of these situations, this is all provided.

Like for this project, it was exactly what was expected for the bodies, right down to the diameter of the ankles on the figures. For every scene, we had an overview of the entire scene. You can see this is from the slave auction, and this is for the mother. It shows her interaction relationship. If she is interacting with another character, how are they intertwined or connected? What's the relationship there? What's the overall pose and intent? And then, how do they fit in to the rest of the scene down here, as well? This was a just a very quick overview that was on the very first page of that section of the documentation. Then there were lots of pages that showed even, how is the costume going to lay on that body, once we have it sculpted? What's the intent there? How much of that body's actually going to be covered?

The big thing for us is we always need to know how much of the skin is exposed because you can see the process that we have to go through to create that silicon skin. There's a sculpt; there's molding; there's casting; there's painting. Anywhere that we don't have to expose skin for any reason, we try not to, typically to keep the budget down and the timeline, but sometimes we can't avoid that, obviously. She had exposed arms, up to her elbows. We had to create those arms, and that kind of leads us into the next step, the messy stuff.

McGlaughlin: The messy part?

Gillum: We could just sculpt those hands and feet and arms and put a team of people on that, but there's lots of hands and feet and arms in the world that we can just borrow. So, if you ever walk into our shop, there are artists that like vultures, that will kind of, out of the corner of their eye go, "Who was that? Can I look at their hands closer?" (laughter) because we can go and copy the hands and feet much quicker than we can actually sculpt them from a ball of clay.

Typically, we go through a life casting process for that, and we're actually going to do that in front of you today; we're going to try to. The process we use at our shop involves some much stinkier chemicals that take a little bit longer to set up, and it's a little more permanent than what we're going to show you tonight. Lara actually bought this kit online, Lara? So this something that you can go out and buy very cheaply?

McGlaughlin: Yeah, at a craft store.

Gillum: Yeah. We going to life cast a hand and hopefully cast it out of plaster.

McGlaughlin: Yep.

Gillum: You can see Lara mixing of the materials now, and we're going to call up our guinea pig, Elizabeth [Mayer], right? Everybody give Elizabeth a hand. (applause) We're going to give her a hand in a minute here, an extra hand. Have you ever been sawed in half at a magic show?

Mayer: Nope.

Gillum: Okay. (laughter)

McGlaughlin: This material is called alginate. If anybody's had a cast done at the dentist, it's very much the same thing. The only difference between what we use and what a dentist uses is the curing times. We can buy alginate that has a much longer set time, so we can cast bigger body parts, where the dentist wants to get it over with as fast as they possibly can. We're going to put a piece of plastic around you, just in case. (sounds of plastic being put over Elizabeth) (laughter). You can leave your arms out. It just needs to be like that, yeah.



Lara McGlaughlin uses oral history intern, Elizabeth Mayer, hand to illustrate the technique for creating lifelike hands with the LifeFormation figures

Gillum: We'll get a full color, eight and a half by eleven of you in this...

Mayer: Yeah, sure.

Gillum: ...as your take home gift.

McGlaughlin: It's not really anything I have to wear gloves for, but since I'm going to be switching from alginate to plaster, it's easier if I just do this, since we don't have a sink.

Gillum: If you glow in the dark tonight, don't worry about that. (laughter)

McGlaughlin: I guess we'll do this hand? We just put a little bit of Vaseline or moisturizer [on] just to make sure that it releases well. It doesn't really have to be there, but it helps out in the releasing.

Gillum: We're going to try something. We don't know how all this is going to work, but it was an idea we had tonight (laughter).

McGlaughlin: We think it's going to work.

Gillum: If she loses her hand, we have to cut this show short. No, we're going to have her hold a penny. The thought is we're going to plunge her hand into the casting material. When we tell her it's set up enough, she will pull her hand out, and she's going to leave that penny in there. Then, the hope is that we can pour the plaster in. It'll grab that penny, so when we pull the plaster hand out, it's holding a penny.

McGlaughlin: (speaking softly) I just have to mix about first.

Gillum: Those are the things we have to think about, if we have characters who are holding prop. We were just working on a Neanderthal the other week that had to be holding a spear, and we had to life cast some hands for that. We had to think through that. How we going to do that? How we deal with that hand fitting around that spear and looking realistic, once we pull the hand out of the cast. So, we actually had our model hold a wooden dowel rod to simulate the diameter of that final spear, so that it looked as realistic as possible in its final form.

Typically there's lots of different ways you can encapsulate this material. We try to do it as down and dirty, as easy as possible. So, we just took a two liter bottle and cut the top of it off. That's actually going to become our holding tank, if you will, for the goo that's going on Elizabeth's hand.

McGlaughlin: It's a little thicker than normal, so I'm putting it on her hand where normally we would just pour it in. We're going to try to plunge her hand in there.

Gillum: Time to make the donuts, Elizabeth.

McGlaughlin: Hopefully, it's going to work.

Gillum: Does she have a penny?

McGlaughlin: She does. This is a lot thicker than the stuff we normally use, not working as good as we hoped.

Gillum: Want some more water in it?

McGlaughlin: Not now. (speaking to Mayer) What you want to do is push your hand all the way down to the bottom and then pull up, so that you don't have it touching anywhere on the side of the container.

Mayer: Okay.

McGlaughlin: You don't have to pull it up real far.

Mayer: Like that?

McGlaughlin: Yep. Then we'll just wait. (laughter)

Gillum: We'll see you tomorrow, Elizabeth. (laughter)

(long pause)

Gillum: So this could be a hand, this could be a foot; it just depends on what we need. It could be an entire leg. We've had to do torsos of women, men. We've been very fortunate in having models available when we have to do the women for the torsos and things of that nature. It definitely saves us a lot of time to be able to copy body parts like that. The catch is, is being able to hold the pose that you need it to be in. Elizabeth needs to hold her hand very still as that alginate sets up around her hand, so that we keep a very consistent pose to that final cast that gets cast out of there. You can do faces as well. A lot of people have a hard time sitting through that though. (McGlaughlin speaks softly in the background)

Gillum: You have to breathe out of a straw, typically. It can be very claustrophobic. So, we don't typically do that because a lot of times the expressions we need anyway, you really can't hold an expression—if it's extreme—that long, to where we could mold it anyway. Also, depending of the age of the person and the skin, on how flexible their skin is, sometimes the material can actually... It's kind of heavy; it can cause your skin to droop a little bit. So, you're not getting a real, accurate copy anyway of somebody's face.

Sometimes we'll just do it as a quick reference, or we'll do it and then touch it up. Many times our team, over the years, have gotten so good with just grabbing a ball of clay and sculpting the head from photos, that we prefer to go that route. It's actually easier for us and more effective. We typically don't life cast heads, faces. What do you think, Lara? Time to make the donuts?

McGlaughlin: It's close, but I don't think it's quite there yet. You ought to do a tap dance.

Gillum: No, that's fine. We'll move on; we'll come back. Elizabeth's going to finish the presentation anyway from here.

A little bit different process here tonight. This is just a kind of at home, do it yourself kit that you can buy online, that you just pour plaster into. When

we ultimately are finished with this, hopefully, we have a plaster hand. Ultimately, we have to have a silicon hand in most situations. It's very a similar process to this up here. If we were to life cast somebody's hand, we pour this clay that we can melt into the temporary mold to get a copy of it. We'll go in and touch it up, fix the texture, if we got to adjust the wrinkles on the knuckles or whatever it is. Then we move to our two-part epoxy mold and ultimately pour a hand, very similar to the head you saw earlier, and about the thickness of skin, in silicon material. And it goes through the same painting process. This one's a partially painted hand. I'll pass this around. You can already start to see the veining, coloration going into this. There's some freckles being put on to this. I'll pass this around.

(laughter)

McGlaughlin: You can pull it out, just leave the penny if you can.

Gillum: Again, exposed hands, exposed feet, whatever it is, we would have to do in the silicon. At the same time then or around the same time, we're sculpting a body to match the references I was showing you before, in terms of the torso, the legs and that, out of an expandable foam. You can see that, underneath this skin here. That's a two-part urethane foam that we can blow up. We typically will have a standard mold. If it's a male, we have a couple of different molds that are five foot eight, five foot eleven. We'll pour this foam in there, and within five minutes, this foam will expand and set up, to the point where we can then pull it out of the mold, and the team can cut it apart.

They start to make it into, literally, like an action figure. They'll cut the arms apart, the legs, the torso. They'll bend the torso if they need to. If they've got to start building that up to a different body build, add weight it, to the belly, the torso, whatever. They'll just start carving and whittling away at this foam body to get it to where we need it to be. Then we'll take some of these parts that we cast, the hands, the feet, if there's anything exposed, and we'll set them on there to make sure that the proportions match up for that.

Basically, this foam structure, typically, becomes the underlying structure on anywhere where there's not skin exposed. It has to provide the form for that. Once we have that and have it approved, we will then pull a fiberglass shell off of that foam. Lara showed you this earlier. There's a fiberglass shell in here that basically forms his skull. We would actually fiberglass over top of this foam body. Once it's all fiberglassed, we go back and cut it apart and pull all the foam out of the center. So, you're left with a hollow, fiberglass shell of the foam body that you carved.

That's what we hand to our fabrication team, who will go in and build the mechanical framework structure inside of the character. Usually that's built out of steel or aluminum, sometimes stainless steel, depending on the environment the figure's going to be in. All that structure has to live within the confines of what the artists have created with the fiberglass shell. We can't have anything sticking outside of there, because we know everything has to

look like what that body looks like the way they sculpted it. A lot of times, all that's custom built, once it's handed to the fabrication team. From there, we're going to check back in with Lara real quick before we move on.

McGlaughlin: Well, we got her out.

Gillum: Hey! And she still has her hand.

McGlaughlin: I don't know if you want to show...

Gillum: (speaks quietly to McGlaughlin)

McGlaughlin: So that is the inside, where fingers are.

Gillum: You can see the details, the knuckles. We actually pulled off her ring too; she doesn't know that. We're going to keep that (laughter). Hopefully the penny's in there, huh?

McGlaughlin: Well, she didn't pull it out (Gillum laughs), so it's in there somewhere.

Gillum: This set up pretty quick, this alginate material, enough to where Lara's actually now mixing up the plaster that she'll pour in there. Then, once that sets, we can just peel the alginate away, and basically, this becomes a throw away mold at that point, that gets destroyed. But hopefully we end up with a hand afterwards.

(long pause)

McGlaughlin: I need some fingers.

(long pause)

Gillum: Okay. And that will take a couple of minutes to thicken, probably? We don't usually work in the plaster.

McGlaughlin: I'm not sure.

Gillum: (laughs) We're going to set that aside. Hopefully it sets up before the end of the show.

McGlaughlin: See that after the show.

Gillum: Yeah! (laughs) So, after we have the body sculpted, we have the shell; we have arms, legs, head, all of that are cast out of silicon and are in finishing. That all starts to come together in the end, where you can actually start to see the figure be assembled.

At that point is when we have to deal with costuming. For this project, that was a **huge** undertaking. Every piece of fabric, every piece of leather, every shoe, every sole of a shoe that you see out there was heavily researched. Lara was provided with a pretty massive stack of reference. I'm going to have her talk about that here in a second. But basically, they even provided some fabric samples. One of the designers had actually gone out and sourced lots of

different fabrics. This was early on; a year before it was actually handed to us, somebody was out there sourcing different fabric swatches, everything, from pants to shirts. This was actually for the slave child. You can see all the different samples that are in here. Lara had the job, once it was handed to her a year later, to go out and figure out how we're going to actually create the costumes and try to go back and find some of these fabrics that were sourced a year earlier, which can be tough in the fabric world.

McGlaughlin: Right. Typically fabric goes in and out of style every season. So the odds of having fabric available a year later was really unlikely. We did a lot of sourcing and coming up with things that were not close enough to the original swatches. In the end, we went out to Los Angeles and actually hired the shopper who had done a lot of the swatching for the Bob Rogers Company, the year before.³ She took us around to all the places she had found the sources and helped us locate originals that were still available and then also helped... Because she had been part of the original sourcing of the fabric, she understood what the creative directors were looking for, in terms of textures and colors and that type of thing. So, she was able to help us swatch and get more colors.

Basically, I spent a week out in Los Angeles, where in the morning we would meet with the costume designer, and we would talk about what her goals were for the swatches and what was important to her and what not as important to her. Then we would go out shopping all day (Gillum laughs), and then we would meet up her at the end of the day and show her what we had found. She would give us notes, and some of the notes were, "Well, I like the pattern, but the color is not quite right." Then we would spend that evening, dying swatches in the hotel room, in the bathroom sink.

Gillum: Holiday Inn loved Lara. (laughter)

McGlaughlin: I was very conscientious and made sure not to dye anything in the hotel (Gillum laughs). This is an example of a fabric that was approved as a pattern and a texture, but it wasn't the color that she was going for. So through dying we were able to take this fabric and turn it into this fabric, which then became an approved fabric for his shirt.

And then you can see, on the slave leather, we had the same type of thing. These are the original swatch colors, what they were looking for. And these were things we were able to source. This one was the actual fabric, but we just had to dye it. These were... It was a similar situation, where this fabric was approved, but we had to dye it.

We came away from that week out in Los Angeles, and we have these codes that tell us whether we bought it, whether it was approved, what we had

3 Bob Rogers is founder and chairman of BRC Imagination Arts, an experience design agency, referred to as "one of the world's leading creators of content-based visitor experiences for museums, cultural centers and theme parks". ([https://en.wikipedia.org/wiki/Bob_Rogers_\(designer\)](https://en.wikipedia.org/wiki/Bob_Rogers_(designer)))

to do with it. This one, the blouse was left out. After a week of being in L.A., we still didn't have a blouse for her. We went out and did more sourcing, and this ended up being the sample sheet that we sent out for a choice for the slave mother's blouse. This one, finally, was the one that was approved, right here. This is another sample that we sent out with different amounts of dye, where they approved the fabric but hadn't approved a color. We had to send these out to get them approved as well.

This is the book that shows... These are all our records for how we dyed the fabric, because we couldn't just dye the fabric and then not keep track of what we had done, because if we got it approved, we needed to duplicate it. These are little dip pieces of fabric that show us what the color looked like before we created the sample. I think there should be one in here for the slave boy's shirt. This is one we did for one of the pants and jackets, where we had to take the wool and get it to a particular color. This was the color of the dye, and then it created these wools; this was for Seward, because we have it labeled. We wrote down which colors of dye we used and the level of amount of dye we used, so that we could duplicate it.

Gillum: We definitely had it down to a science by the time they were done spec'ing. That was just the fabric; we haven't even got to... Now I make it look like a shirt or a pair of pants.

McGlaughlin: Yeah. This is the one that shows the slave mom and the slave child, what the color of the dye was, in order to create that, and that was just the fabric.

Then we had to move to doing the mock ups. The mock ups were determined by these drawings. Do we have Lincoln's because that might be better?

Gillum: I don't know if I have it out.

McGlaughlin: (to Gillum)—I thought I had it; okay, it doesn't matter—So, when we looked at the drawings, the drawings had... You had to learn how to interpret the drawings because they had a way that they wanted you to read every line of the drawing. This one doesn't show a label on Lincoln, but the lapel had to fall the same place, in relationship to the vest, as what the drawing showed. So we became experts in how to interpret sketches and turn them into actual clothing. We would create mock-ups out of muslin. This is part of Lincoln's shirt. It was a finished shirt at one point, but once it was approved, then we took it apart, in pieces, and used the pieces to make patterns, so that we were able to duplicate the clothing over and over again, because some clothing items could be repeated on characters, like Lincoln's shirt. His pants and his shirt stayed the same throughout the exhibit, but his jacket was different, I think, every scene, and his vest changed, almost every scene. The patterns and the mock ups had to change for every scene.

Gillum: Then they would move into final costumes. But really, that's not the end of the costuming part either, because there was an entire aging process that

happened, once the costume was on the figure, and it was laying where it would ultimately lay and be positioned on the figure; all the finishing happens then.

We pull the whole character together. You've got the costume on it. There's some tweaking of the eye positioning. We start to lock in our joints. Sometimes we'll leave the arms as posable joints, almost like a large action figure, where it's a ball and socket. That allows us to put the clothing on easier and allow for some minor tweaking of pose.

All that starts to get locked in, and then they come in and they start to age the costume, which involves anything from sandpaper (both laugh) to torches. It's pretty amazing, just the process of the aging of the costumes.

McGlaughlin: Yep. We can steam the wrinkles in, but then we have to add a sizing to the fabric to get to stay in place and have the same width. We might use real dust to do some aging, but we have to lock it into the fabric by spraying it on.

Gillum: Sometimes they'll walk around and ask, "What size of shoe do you wear?" And I'll say, "Oh, ten, eleven." "Alright, put on these Civil War shoes, and walk around in them today."

McGlaughlin: But they have to be wet.

Gillum: Yeah, while they're wet. (laughter)

McGlaughlin: They always have to be wet.

Gillum: So you put a plastic bag on your feet, and then you put on these shoes, and then you walk around the office all day with Civil War boots or whatever it is. Then they'll take them. That starts to break them in a little bit.

McGlaughlin: Yeah.

Gillum: Then there's an entire process of sanding them and bending them more and getting them to look like not a brand new pair of shoes that just came off of the shelf. That entire process goes on.

There's even some idiosyncrasies to some of the characters. Like here, they had to keep wrinkles in some of the clothing. You can't just temporary put a wrinkle in and expect it ten years later, today, to still be there. Some of the characters had to have that dealt with, Grant.

McGlaughlin: Specifically, there was a difference called out between Grant and McClellan, where McClellan, he's the proper [gentleman] and everything just so, where [Grant] was very much...slept in his uniform, rag tag, just doesn't care about formalities. They wanted that reflected in the costumes and the hair and everything about them; the poses reflect that. Everything reflects the personalities they were trying to capture.

Gillum: Yeah. All that happens once the figure comes together—pretty much what you see out here—because there’s lots of little tweaking that goes on. And once they got to the site here, they still did aging. They adjusted the positioning of eyes and heads to get them just right, to get just that right eye contact when you walk up to the figures.

Fingernails, sometimes they were actually added as a fake fingernail, sometimes they’re painted on. Again, it just depends on what the public access is to them, because the team can actually paint a lot of those on for the males, and it looks just as real as putting on a fake fingernail, and it’ll last a little bit longer if people are touching it.

Then they’ll do the final styling of the hair. Sometimes that gets gelled; sometimes it actually gets sprayed in place, doesn’t move, all those things. That’s really... The end of the process at that point is when we pass it off to the exhibit. We get it under lights, and we do the final tweaking.

Now if it’s an animatronic character, there’s lots of things along the way that are different. We have to take into account the movement. We have to take that into for the sculpt itself. If the mouth’s going open, you have to sculpt that a little different, so that it will actually stand up to the rigors of the silicone opening and closing over the years, for a character that speaks. The costume is built totally different because you have to be able to get in to service the character. You have to worry about, is there any rubbing issues of things moving around. There’s electronics involved. There’s mechanics involved. There’s scripting. There’s audio production.

If they become an animated figure, it’s a much different process. But overall, it’s generally the same. The process that we described to you here is pretty much the process that we go through for what you see in this museum, for the figures here. Lara, you want to add anything else? Did our hand turn out?

McGlaughlin: It’s not done.

Gillum: It’s not done, okay. (laughter) Well, hopefully that will set up. I understand we’re going to go out and speak to a lot of you after the presentation here. Hopefully we’ll be able to pass this hand around, and Elizabeth can walk home with a spare hand. (laughter)

But that’s the overall process. So, I think we’re going to open it up to questions and answers.

DePue: Absolutely. I’d better get everything I need (Gillum laughs). We need some chairs up front, so let’s go get those.

(pause)

It’s an amazing process, and I’ve got to tell you, at first you look at this, and it’s always very impressive. You think, How hard can it be?

(laughter) It's incredible, the amount of detail that you guys were provided before you even got started on this and then the level of detail and the care you took to make sure you got everything right. The proof's in the pudding. You go out here, and the public is just amazed by this stuff. So, I think what we need to do now is to open it up to the public and let you ask some questions. The way that this is going to work is, there will be microphones—and I ask you to be a little bit patient while we get the microphone passed to you. No microphones? (unintelligible response). I'm going to repeat the question. (laughter)

McGlaughlin: Just like that.

DePue: Just like we had planned to begin with, I guess. (laughter) We have a gentleman right up front, here.

Questioner #1 I rent to a young woman who is a plastic surgeon resident. I would imagine she would be fascinated to come visit you. Do you have plastic surgeons coming to visit you?

DePue: The question is, do you have plastic surgeons that find out your process and get some advice?

Gillum: Sometimes it's the other way around (laughter). I don't think we ever had a plastic surgeon.

McGlaughlin: I don't think so.

Gillum: We brought in... Recently on a project, we had a fellow that wanted to make a figure of himself. It was his seventieth birthday, and he went, "I'm going to do something crazy. I'm going to have a figure created of myself," a local gentleman. So he came over. His big thing was, he had a huge smile.

McGlaughlin: And an expensive one.

Gillum: A very expensive one (laughter), and he was proud of it. He paid a lot of money for his smile. So, he said, "I want to make sure that my teeth are very accurately captured in this figure." So, we actually had a local dentist come in and pretty much do what you saw here, with the hands, and took an alginate mold off of his teeth. Actually, it wasn't even alginate; he gave us something else to make it easier to work with.

McGlaughlin: Yeah, it was an epoxy.

Gillum: Yeah, he did an epoxy mold of his teeth. It took a couple of times to get it, but then we actually used that to cast his teeth out of it. It as an exact copy of his teeth.

McGlaughlin: And we used it to sculpt with. We started with a cast of it in the sculpt to make sure that the lips followed the contours of his particular teeth.

Gillum: Yeah. Then we actually had one of our past employees, who works in the medical industry.

McGlaughlin: Makes prosthetics for people.

Gillum: Yeah, yep.

DePue: Very good. Okay, one right up here.

Questioner #2 I'm amazed at all of the figures, but what is most impressive to me are the features on the hands. How did you do the veins and make their hands look real?

DePue: The question again is, being so impressed by the detail that's in the hands and how you get that level of detail the veins, and age spots or anything like that on the hands?

McGlaughlin: Well, I would think that the first thing that does that is what we're trying to do the sample of, where we were trying to show you that, when we do life casts off of hands, that level of detail that's copied from the alginate is pretty amazing.

The next step after that is that you take that alginate, and you would use that clay that we talked about with the head sculpt. That gets poured into the alginate, instead of the plaster. From that clay, then we can do any touch ups or anything that we need to do and then turn it into a mold, so that we can cast the rubber into the mold.

Then it's about the painting process and really paying attention to the variations in skin tone on the hands, being very particular about where we put colors and that kind of thing.

Gillum: Yeah, I think the big thing for us is, there's not a lot of things that stick to silicon. So the team, over the years, has developed an incredible process. It's kind of like the formula for Coca Cola. There's only like four people that know it; they can't fly together (laughter). But that process is actually our homegrown process that we use, that nobody else knows about, that they just developed over the years. The big thing about that is getting it to stick and also the translucency. That's the part that makes it pretty magical.

It's a lot easier to get that in a wax figure. We're not working in wax. That translucency is easier with wax. It was always difficult to get that in silicon. When silicon came out, it was one of the first things the team attacked. We love this material because it holds up a lot better than the material we used before silicon.

Back in the late '80s, early '90s, there was a urethane material that you would use. It wasn't very realistic, but it was all that was available. The bad thing about it was, in like three or four years, it would start to break down. We would do like Bob Hope or Marilyn Monroe. You would see her three or four

years later, and she'd be sweating (laughter). She's literally breaking down, back into her liquid form (laughs).

The translucency is the other thing that helps with that. It's getting that process down, but then also having a team of people that is sensitive to that, to create that when they're painting the veins and all those things.

DePue: We'll take one, way in the back row here.

Questioner #3 All the children just love coming up close to these figures. They've found buggers (laughter) and all kinds of things. How long will these figures last? (unintelligible)...

DePue: The question starts with the statement that the children love the detail in here, and of course, they look for the kind of things that children would look for. (laughter) So how long do these things last? (laughter)

Gillum: He left out some of the detail. Ah, that's actually a really good question. Part of our visit today was meeting with the staff about upkeep. The way the figures were designed, they actually have interchangeable parts on them. So, the heads, the hands, anything that's exposed, for the most part, can be interchanged. A lot of figures actually have a spare head or a spare set of hands because they knew they wanted to be able to have the public interact with them, but overtime, with millions of visitors, they're going to get dirty; they're going to get worn.

You can see, just from the hair poking process, that's not something that's really that permanent; somebody can pull that hair out of there. You've got all those things you have to deal with. So, they swap out the heads and hands. Then the spare set will come back to us, and we'll do touch ups on them. We have a box full of body parts (laughter) that we're taking home with us to refurbish.

DePue: That'll be fun, taking them through the airport maybe? (laughter)

Gillum: No, we don't have to do that. We've done that before. You'd be amazed what you can get through there without question. (laughter)

DePue: Right here, yes sir.

Questioner #4 I don't know who the (unintelligible)... If I come into your office and ask for say, John Wilkes Booth—it doesn't matter who it is—can you give me an approximate cost (unintelligible)...?

DePue: Ah yes, there's always an accountant in the audience who wants to know how much John Wilkes Booth might cost?

Gillum: It's like saying, "How much does an automobile cost?" There are a lot of factors—I'm kind of being a politician here—Really, though, it's a wide range. It could be anywhere from a couple thousand dollars to the sky's the limit, especially if you want that character to be animated. You got to take the

costume into account; sometimes that's provided to us, sometimes we can pull something off the shelf.

In this [the ALPLM] situation, Lara was out there basically traveling the country, and everything was hand built. Like I said, anywhere from a couple thousand to sky's the limit. We've created characters that were animated that had a lot of what you saw here, custom sculpt, custom costume, lots and lots of movement, that were six digit figures in cost. And that's nothing really... If you talk to somebody like Disney, they're kind of at the pinnacle of...especially the animated figures, they'll spend \$1 million on a figure and not even bat an eye.

DePue: Would this be something that's based on the number of hours, or do you have to estimate that going into the project?

Gillum: That's a very tough part of our business; somebody will come and say, "I want a T-Rex that's twenty feet tall, and it has to roar and scare kids, and it has to run twenty-four hours a day for at least five years. How much?" Some of that stuff, we have to sit down and go, "How would we do it?" or "We know we've done this. It's this size; multiply it out."

It depends on what we have to build from scratch. It depends on how much research we have to do up front, R&D. Like I said, if it's an animated figure, it depends on how much movement, and then how much interactivity or control has to be involved, in the end.

DePue: Right up here.

Questioner #5: How big is your staff? How many do you have working in the business?

DePue: This is a pretty straight forward question: How big is the staff? know you've got two locations now, correct?

Gillum: We have two locations. Our BG Shop is actually fairly small right now, probably ten, fifteen...probably fifteen people.

McGlaughlin: Right.

Gillum: We're at probably fifteen in Bowling Green, but our Cincinnati shop... The type of projects that they're working, in terms of set work and theming, being in Cincinnati makes it easier for this; they'll ebb and flow anywhere from the average, permanent, full time is around twenty people, but they'll go as high as forty people at that location to push through a project. They may grab art students from the local universities, theater students, to help with set work and props and things like that. That facility is very much project based. Whereas we hover anywhere from fifteen to twenty, twenty-five people, typically in the Bowling Green studio.

McGlaughlin: Right.

Gillum: And the Bowling Green studio concentrates mostly on the figures like you see here in the museum.

DePue: And the young lady right here.

Questioner #6 Approximately how long did it take to do all of the figures?

DePue: There are what, forty-eight figures in the museum here? How long did it take to create all of these? (Gillum and McGlaughlin laugh)

McGlaughlin: Well, we had a year...

Gillum: This is a great line (laughs).

McGlaughlin: But I always say that it took me two years to do a project in a year's amount of time. Because of the amount of hours that I put into it, it really was two years' worth of work, but we only had a year to do it.

Gillum: And I would say, the amount of people we had on that total—we looked at sculpting and costuming, body sculpting—maybe a team of fifteen?

McGlaughlin: Yeah. It would vary because we had costume people that were hired on to do the costumes; so they would go in and out of the shop. And we had multiple projects going on, so we had to pull people into the project, and then they would pull people back. So it would ebb and flow too.

DePue: How much of the work, actually occurred here? Did you hand it off to the BRC team by that time?

McGlaughlin: There was a team that came to install with BRC, so it was only handed off once everything was done.

DePue: We need to get this side of the audience. Yes, sir.

Questioner #7 This Saran Wrap you put on the face and then you could (unintelligible), make like the wrinkles. What was the difference between doing that with a (unintelligible)...?

DePue: The question is that the whole audience was impressed and intrigued by the use of the Saran Wrap. What would be the difference using it and not using it?

McGlaughlin: That's a good question. It softens all the edges. Like the brush work that I was doing, it's nice round soft areas. If I were to do it without the Saran Wrap, it would be fuzzy, and that leaves like a really rough texture that then, when translated into the mold, makes a really difficult texture to paint and also leaves lots of bubbles and stuff like that. So, it just adds a softness to it that lets it be more finished and easier to paint.

Gillum: And that process will take usually a couple of hours, maybe up to a day, once we have the sculpt approved, for them to go back and do that texture and all the wrinkles and stuff like that.

DePue: I just saw another one, right here in front.

Questioner #8 As a volunteer, one of the most common comments I get is, “They’re so lifelike, they’re creepy.” (laughter) As you said, Children love them, but I’ve seen adults (unintelligible).

DePue: Some of the audience might not have heard that. The comment was that they’re so lifelike—and this is a great compliment, I would think—they can be kind of creepy.

Gillum: Yeah, no matter how accustomed you are to them, even in our shop, there might be... There’s an old Elvis in our shop. It’s in Lara’s office when you walk in her door. It’s been there for years. It’s just a character that we started on, never finished, just a little personal project that we had done in-house. I can come in there 100 times in a day, and it’ll catch me out of the corner of my eye, especially at night, when you come in and flip the lights on in the middle of the night.

But, yeah, everybody reacts differently to them, for sure. Sometimes the kids think they’re creepy, and it scares them. It’s interesting, we’re very pet friendly; we love our pets. Sometimes the artist will bring their dog in for the day or whatever. It’s interesting even seeing the pets react to some of the characters (laughter). They’re growling and not wanting to go around them. Yeah, you’re not sure how people are going react.

We take that as a compliment sometimes, but also, we want to make sure it’s not because there’s something not right with the figure. Is his arm out of socket? Is it not positioned right? Does it not look correct?

DePue: Well, I’ve got one young man who’s dying to ask a question (laughter), back here.

Questioner #9: How long does it take to make one full mannequin?

DePue: How long does it take to make one full mannequin? Lara, I guess I’ll ask you that.

McGlaughlin: In general, we say it takes about six weeks, which is kind of dependent on the sculpt. If the sculpt takes longer, because we need to do more revisions, then that can extend out longer than that.

Gillum: We’ve done them as fast as two weeks.

McGlaughlin: Not happily.

Gillum: Not happily. (laughter)

DePue: You mean there’s somebody who’s pestering you for it?

McGlaughlin: Exactly.

Gillum: But typically, that doesn't involve the sculpt. If you do a custom sculpt, you're immediately at at least six weeks. With the molds that we have in our gallery, if somebody calls, like I was saying earlier, "Give me a forty-year old, 180 pound male for a Civil War soldier," whatever, just somebody generic, we can crank those out actually pretty quickly, with existing molds.

DePue: I'm going to jump in and ask a question myself, Lara. Here's one of those "Which child do you love the best?" questions. Of all these figures you made for the Abraham Lincoln Presidential Museum, which one are you most proud of?

McGlaughlin: It has to be Lincoln. It's definitely Lincoln. There's things I like about all of them, but he was the prototype, so he was what everything was poured into.

DePue: He was the one you had to get right?

McGlaughlin: Yes, yeah.

DePue: How about the one that was the most challenging?

McGlaughlin: Oh... The slave scene, definitely the slave scene, because of the emotion. There was a lot there that you had to capture. It was just so much interaction, not just with the head sculpts but with the poses of the body and the drama and just really wanting to make sure that story was told properly.



One of the most moving exhibits in the Presidential Museum is the depiction of a slave auction, with a family being torn apart.

DePue: You've heard stories, I'm sure today, from people that you've encountered, who have told you how impactful, how powerful that particular exhibit is. That's got to make all that two years of work in one year. (laughter)

McGlaughlin: Yeah, yeah it does.

Gillum: That scene is still one of the most powerful scenes that we've created. For a static scene, that scene says so much; it's amazing.

DePue: How about some other questions, here? In the back.

Questioner #10 (unintelligible):

DePue: Yeah, that's a great question. How do you transport forty-eight figures from Bowling Green to here? (laughter)

McGlaughlin: A big bus.

Gillum: We have lots of very interesting stories of being pulled over by the police. (laughter) Catch me out there [in the lobby]; I'll tell you a lots of them. We typically will almost like body bag them (laughs) in a plastic material. Then we bubble wrap. A lot of the figures, we'll do temporary stands and things to put them on. They usually go in a Penske [rental] truck, motor down the highway, hope you don't get pulled over because you get asked lots of questions (laughter) and even guns pulled on you. Yeah, we've had some pretty interesting stories over the years of that. But we typically will hand deliver those.

Occasionally we crate them, but we're very careful with them when we crate them. If we send them overseas, a lot of times, obviously, they have to be crated, and they'll get air freighted or shipped via ocean. For that, we'll make sure the crates are built to handle that.

DePue: We probably have time for two or three more questions. We'll take one right back here.

Questioner #11: (unintelligible):

DePue: Question is... I got the first part, I'm sure. Did you have them assembled before you came here? Did you put them together once you got here? And ma'am, what was the second part of the question?

Questioner #11: (unintelligible)

DePue: The lighting was so important. I know Bob Rogers was really focused on that. So, did you tweak the painting of them once you got here, as well?

McGlaughlin: We did all the assembly in Bowling Green, but we did make a lot of the characters to have adjustability; so they might have joints that could be repositioned or moved. Then once they got here and they were directed into position, they would get drilled and locked into place. So, we left a lot of figures to where they could be adjusted and tweaked onsite.

The same with the skin tone, we'd start with a basic skin tone, but then there's always a need to do some tweaking with lighting and that kind of thing. The nice thing though, about the silicon, with the translucency, is it kind of lights very similar to skin tone because of that. So, you don't have to do quite as much tweaking as you might think you'd have to do.

DePue: Chris, did you have a question?

Chris: Yeah. The figure of young Abraham Lincoln, sitting outside the cabin (unintelligible), his eyes are red. Is that intentional? I've always kind of figured that his eyes were red because he was reading by firelight all night long. But maybe it's just the way the color turned out.

DePue: Essentially the question is about Lincoln outside the cabin, young Lincoln, and whether it was intentional that his eyes looked a little bit blood shot, Looked a little bit red.

McGlaughlin: That's interesting because we were talking about that today, and we didn't remember why they would be red. (laughter and applause)

Gillum: He has his stunt double head on right now.

DePue: Well, I'm sure it won't get in the press, right? One other question. Do I have anybody else? Right up here.

Questioner #13: I'm a sculptor (unintelligible), and I've always had one question that I want to know. Why are all the statues in the plaza fistled, with the exception of Robert?

DePue: In the plaza area, where there must be millions and millions of photos taken of those figures, why are all of the figures fistled, except for Robert, you say?

Questioner #13: He has relaxed hands there.

McGlaughlin: Well, the real reason was to protect the fingers from being damaged because we have noticed that people like to mess with fingers (laughter), and that that tends to cause a lot of damage. Robert, you'll notice, doesn't have any wiring in his fingers, so his fingers are wiggling. That was also to protect them. They wanted to protect as many of the figures as they could, but they didn't want to just have everybody fistled. So, it's like they finally decided just to have his straight, in the hopes that that would be good enough to keep his hands safe.

DePue: Well, thank you very much. It's been an incredible and enjoyable evening!
(applause)

DePue: We have a couple of admin announcements. The first is that you're all welcome to a reception we have immediately after this, a generous donation by Bill and Julie Cellini. Julie Cellini has so much to do with the creation of this museum in the first place, so it's wonderful we have that chance. People are going to come up and ask you all kinds of oddball questions in that process (Gillum laughs).

We do want to announce the next two Evening with the Creator events, as well. On Thursday, August 20, we have the BRC Artists and Designers, so you might want to come back and to hear more about that, encounter some of the people that you might have had interesting discussions with (McGlaughlin and Gillum laugh) ten years ago. Then, Thursday, September 17, we have David Kneupper, who is going to be coming here and talking about this incredible score that he wrote for the museum. It weaves all these parts of the museum together so wonderfully. I invite all of you to try out both of those.

We certainly don't want to miss the opportunity to thank you, again, for this evening, and we've got a plaque. "Special thanks to LifeFormations for your vision, talent and dedication allowing us to share your dream that is continuing Lincoln's legacy, from the Abraham Lincoln Presidential Museum." (Audience claps)

Gillum: Thank you, we appreciate that. Thank you!

DePue: And thank you! (applause)

In the process, he's going to be moving a lot of these items out into the plaza area as well, so you'll get to take a closer look at of them, as well.

Gillum: Well, there it comes.

DePue: You're dying to see this; aren't you, Elizabeth?

(sounds of efforts to release the hand mold)

Gillum: I wish I'd popped a hole in there. It's got suction on it. Poke a hole in it.

McGlaughlin: I don't see it. Oh, there it is!

Gillum: Oh, yep, there it is.

(applause)

Gillum: If this had been clay, we could go back in and touch up the little air bubbles and things like that. Like I said, a little bit different process but gives you an idea of the methods involved here, the principles.

McGlaughlin: Just going to dig all that out.

Gillum: Yeah, dig it all out. This is where we usually pass it off to the interns, you know, and they get it out a little (laughter), pretty cool.

McGlaughlin: Need more tools.

Gillum: Yeah, a cleaner.

McGlaughlin: This one's safer.

DePue: I'm sure you have time to do this much more delicately, when you don't have a camera and an audience (Gillum laughs)...

Gillum: Yeah.

McGlaughlin: Yeah. When it's clay, you have to be a lot more careful because you don't want to damage the clay either. So, it goes very slowly.

Gillum: Yeah, this actually is much more forgiving for that. While she's doing that, the other thing that's absolutely revolutionizing our world is 3D printing. At our facility in Cincinnati, we actually have a huge robotic arm. It's a five access machine similar to what they'd use in robotic welding in the manufacturing industry. But it actually has a drill bit on it, and we can take four foot by six foot chunks of Styrofoam and cut them to anything, based on models that we sculpted digitally on a computer. So, we could actually carve that hand out of foam within thirty minutes on our machine, based on computer digital models that we have on the computer. That world is

changing very rapidly and helps us in many ways. We still need artists to do a lot of this work, but it definitely speeds up some the processes.

DePue: Again, this has been an incredible experience to see this first hand.

We've got the hand liberated finally! (applause)

Elizabeth, does that look like your hand? I think what we need to do then is get everybody outside and have a little bit of fun and little more conversation and get a chance to see some of these things close up. Thank you again.

(end of transcript)