



The science and art of shaping glass

Narration: Scientists stock their labs with lots of off-the-shelf glassware — stuff like beakers and test tubes. But many experiments require nonstandard equipment, pieces that must be custom-made. At Idaho National Laboratory, one man designs and makes this specialty glass gear. Scientific glassblower Russel Lewis talks about his job, and how he got into torching (*sound of torch fades up*) and twisting glass back in 1987.

RL: I started playing with melting glass in the garage — just melting pop bottles. And it was so fascinating that I decided, well (*sound of torch fades down*), I might as well jump into it and buy the right equipment, and the right types of glass, and so I did. And back then there wasn't the Internet. There wasn't this huge amount of information available at the touch of your finger. So you're based on a couple of books from the library and go in the shop and learn what you can. And that's pretty much how it's been for me for 23 years. I started out teaching myself, just in the garage (*laughs*).

MW: And so it was all trial and error at first. You didn't really have a great idea what you were doing, you just thought it was cool and neat, and you wanted to see what you could do?

RL: Yeah. Yeah, once you start doing it, it'll really capture you. And, you know, once you get past the finger-burning stage, then it starts to be a lot of fun.

MW: What about some of the pieces that you make for people? What are your favorite types of pieces?

RL: Well, I can't say because every day I build something new. So it's hard to rate things that way, because I may have never built my favorite thing yet (*laughs*).

MW: And just to give us a little bit of an idea — from start to finish, how long does a job usually take? I mean, a typical piece — how long would it take to make?

RL: A lot of it depends on the complexity. Sometimes you can put a simple apparatus together in a couple of hours and get it in the oven. Sometimes you've got multiple pieces and you have to sit there and think about how to put it together, and in what order do things have to go together and that kind of stuff. So it varies a lot.

MW: Will the scientists come with just a rough sketch of kind of what they want, and then you have to figure out how to build it, or —?

RL: Yeah. Yeah, that's generally the case. They'll give me their concept, and of course some of the things I was asking — what temperature are you running at, are you running under pressure? Those kinds of things, so that I know, on my end, how to make sure it performs for them.

MW: And so after working with glass for 23 years, you've probably got a pretty good idea of how to put these things together. Do you ever have days where it's like, I don't know where to begin?

RL (*laughs*): Yeah! Doesn't everybody? Yeah, and there again, it falls back to the complexity. And on those kinds of things where it's really complex, you just have to —sometimes you have to learn the hard way. But the more you think, the less you have to redo. So it certainly pays off to put a lot of thought into what goes first, and how to assemble it, and what kind of materials to use, and that kind of stuff.

MW: Do you still do this stuff in your garage in your free time?

RL: I do have a shop, yeah. I have a shop at home and always will, yeah.

MW: So now that it's your job, it's still fun to make your own stuff at home?

RL: Yeah. Because the stuff I do at home is strictly art, and it's almost completely different. Because everything I do in the art side of it is solid glass, it's more sculpturing. And everything I do in here is tubing, and hollow, and blowing and shaping. I don't have a lathe in my shop at home or anything like that — it's all just by hand, so.

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Narration: I'm Mike Wall for Idaho National Laboratory Communications. To find out more about all the research being done at INL, visit www.inl.gov (*sound of torch fades down*).