CERAMIC TECH CHAT

Episode 22

Title – "Welcome to IYOG 2022: Kathleen Richardson and Manoj Choudhary (E22)"

INTRO

De Guire: "I'm Eileen De Guire, and this is Ceramic Tech Chat.

> Since 1959, the United Nations has designated International Years for the purpose of drawing attention to topics of global importance and to encourage international action. Last summer, the United Nations announced that this year, 2022, would be the International Year of Glass.
>
> This is the first time that a material has been recognized with a UN International Year. To learn more about what the International Year of Glass means for the global glass community, The American Ceramic Society, and the world we live in, we invited two renowned glass experts to join us today."
>
> (music)

SECTION 1

De Guire: "Dr. Manoj Choudhary is retired from a research career at Owens Corning. He's an adjunct professor at The Ohio State University, and he also served as president of the International Commission on Glass from 2015 to 2018. Dr. Kathleen Richardson is Pegasus Professor of Optics and Materials Science and Engineering at the University of Central Florida, and she is the past president of The American Ceramic Society. Welcome to you both."

Choudhary: "Thank you."

Richardson: "Thank you, Eileen."

De Guire: "So first, in recognition of your work in the glass sciences, can you each tell us briefly what your research in glass has been and what the impact of it is? Manoj, why don't you go first."

Choudhary: "First of all, Eileen, thank you very much for including me in the podcast. I'm very pleased and honored to share this stage with you and with professor Richardson. My own interest in glass is primarily in the area of glass melting and forming processes at the industrial scale and how to innovate them, and also with developing products that contain glass fibers. More specifically, over a span of some four decades, the thrust of my research, the focus has been on sustainability topics. So, for example, through process

innovation, improving the energy efficiency of industrial glass melting and forming processes, reducing environmental emissions, reducing the landfill, increasing the recycling content. So, that has been a large focus of my effort.

And I will further add that I come with a very broad background in materials. So in addition to glass, which had been my center of attention for over three decades, I've also worked for six years with the polymers and some more years with ferrous and nonferrous metals, and with chemicals, and with minerals. So it's a very broad background, but the connecting theme in all of them has been sustainability."

De Guire: "Excellent, thank you. And how about you, Kathleen?"

Richardson: "Well, Eileen, thank you as well for including me because I think between the perspectives that Manoj and I can offer our community, I think we are great bookends from the standpoint of highlighting the importance of both his discipline on the industrial side as well as my front end on the supply chain of generating educated, trained workforce that supports industry and research. And that's what I, as an academic, do. I have, it's interesting. It's 40 years this year since my first degree from Alfred University in ceramic engineering, and it's fitting that we're celebrating this year because it so aligns with the focus of my career in optical glass science and engineering.

I'm a researcher, I'm a teacher, I'm an educator, I'm a mentor, and I'm a trainer. And what we try to do is really work in the multidisciplinary space that frankly didn't exist in 1982 when I got my first bachelor's degree. I was fortuitous to have experiences that guided me in this direction that bridges materials science, glass science, and optics.

My efforts are primarily in the area of infrared glasses, which in the early days was a bit different because it wasn't in the areas that most of us in society are familiar with in terms of visible glasses for structural and automotive applications, for example. But in the last several years, the ability to see in the infrared, beyond use in military applications, has really become something that is an area that's of great interest, both commercially as well as from the defense sector.

So, I think those experiences, those technologies, those understandings of why multidisciplinary experience is important from the educational standpoint have directly fed into what our community needs in terms of workforce. And I've been very proud to not only lead the education in that direction but also to serve in the Society where those aspects of education and training have been emphasized."

De Guire: "Thank you. So, Manoj, the United Nations International Years have recognized many professions, industries, scientific and human endeavors since 1959. For example, 2015 was the International Year of Light. So, how did this particular International Year of Glass come about?"

Choudhary: "Well, the genesis of the idea of having an International Year of Glass goes back to 2014. That year, several scientists in Corning proposed the concept or the theme of 'The

Arrival of Glass Age.' And you know, Eileen, that we are very blessed and fortunate to have in our community, in the world of glass, a visionary like David Pye, who all of us know very well. So, he was then at that time the editor-in-chief, and really the founding editor, of the *International Journal of Applied Glass Science*. And when the UN, as you said, in 2015 declared the International Year of Light and Light-based Technologies, professor David Pye came out with a special issue of the journal with the theme of 'Glass and Light.' And then he followed it up in 2016 and 2017 with two issues of the same journal dedicated to the theme of the 'Glass Age.'

Now, I was the president of the ICG in those years, 2015 to 2018. And I had the privilege and honor of working with David and the two of us promoted and advocated the idea of 'Glass Age' to numerous international audiences. And finally, in 2018, both of us in Japan proposed the idea to the International Commission on Glass. Before that, The American Ceramic Society, the Corning Museum of Glass, and many other institutions had already come on board with this idea. And in 2018, the ICG also energetically supported it. And then, it was led by professor Alicia Durán, who followed me as the president of the ICG. So I cannot say enough about the energy, dedication, and hard work that professor Durán put in to make that vision, to make that idea into reality.

We had the support from some 1,800 institutions from over 80 countries spread over five continents for this idea. It was a massive, international support. And then we should also mention the role played by the Spanish Ambassador to the UN, Agustín Santos. So with all these efforts, finally on May 18 of this last year, 2021, as you know, the UN General Assembly declared that 2022 will be the International Year of Glass. So that briefly is the history of when it began, how it came about, and when it finally materialized."

De Guire: "Thank you. It definitely sounds like it was a global glass community effort with everybody engaged. Very exciting."

Richardson: "And, Eileen, if I can just add, we were so fortunate that several members, and I'm talking about on the order of a dozen of us from the Glass & Optical Materials Division, because optical glass is a subsection of the International Year of Light, we got a head start on understanding the scope and indication of how you would go about organizing that. So, we wanted to acknowledge our partners at SPIE and The Optical Society of America, now called Optica, because they've been extremely supportive of us and our mission to create the International Year of Glass. And I think, I know Alicia Durán has benefited as well in terms of understanding aspects of organization and structure at a global level from this partnership and using the International Year of Light as a model. So, having that multidisciplinary partnership already has really helped us to work on a relatively short time frame to pull this all together."

(music)

SECTION 2

De Guire: “For many people, their first entrance for appreciating glass is through art, whether it’s a stained glass window at a church or a museum piece or something. So, can you talk a little bit about what glass means in terms of the aesthetics, the aesthetic applications of glass.”

Choudhary: “Absolutely. So, first of all, let me say that no other material combines beauty and utility as glass does. As I mentioned in my introductory statement, I came from background in many, many materials. Chemicals, polymers, minerals, ferrous, nonferrous metals. And I love them all. I worked in all those fields. But I have to admit that none of them, no other material combines beauty and utility as glass does. You mentioned stained glass. You know, aesthetics and beauty is an extremely important part of human experience. And when we wrote the proposal for the UN for the International Year of Glass, we made it a point to bring up the role glass has played throughout human history, throughout millennia, in enhancing the aesthetic aspects of human experience. As you know, ancient glass—and when we say ‘ancient,’ we’re talking about 2500 or 3000 BC—at that time, glass was an object for the elites. It was an object that was used for beautification, a jewelry item. And then, after the industrial revolution, glass became a material of mass consumption. But it has started out as a material of beauty. And that heritage, fortunately for humankind, is very much alive. So, even in the effort that they put together for the celebration this year, glass artists, workshops, museums, they are as important, and I would say even more important, than those of us who come from the science, technology, engineering, and research angles. So, this is what my take is on glass’s role in aesthetics, in beauty, in appreciation of life.”

Richardson: “And, Eileen, I’ll just add to that because I think it’s really important. There are 17 goals the UN has for 2030, and so many of these resonate with old and young in society from a global standpoint. We have spent a lot of time in the last few years, pre-COVID and through COVID, discussing issues with regard to health, with regard to sustainability and resilience. And what comes through year after year and issue after issue is the unheralded but very important role that glass has played, whether it’s the fact that energy and energy efficiency. Well, the very first windows that were put in buildings were there to keep out the cold or the heat. And now, energy efficiency and windows and scalability of manufacturing for high energy efficiency windows becomes extremely important. High strength, sustainable, recyclability, glass has continued to be at the forefront of aspects of importance to society.

And the important thing about the International Year of Glass is it’s a society-driven focus. Manoj highlighted the fact that it is something where the science and engineering and the art and experience of aesthetics goes hand in hand. No aspect is more important than the other, and they’re very much interwoven because the everyday person on the street, they know glass. Whether it’s their window, whether it’s their automotive windshield, whether it’s their wine glass or their beverage glass that they’re using in the evening when they sit down. They don’t even realize how extensively glass touches their lives.

And so, I think it doesn't take too much effort for us to elevate glass in society. But we want to highlight it, we want to herald it, and we want to celebrate it. And so the activities we have planned for this year, both globally and also in the U.S., have taken those extremes into account and impact how we are proposing to touch various constituencies of society."

(music)

BREAK

De Guire: "The International Year of Glass is the first time that a material has been recognized with a UN International Year. It's really about showcasing what glass does through all layers of our lives. Learn more at www.ceramics.org/iyog."

SECTION 3

De Guire: "Let's talk a little bit about the International Year of Glass celebration. It's a global celebration. Manoj, can you talk to us a little bit about some of the activities that you're aware of that are planned, particularly on the global stage?"

Choudhary: "Sure, sure, Eileen. So, let me say first of all that although technically 2022 is the International Year of Glass, celebrations began in 2021 itself. So, for example, in India, the association that represents the Indian glass industry, they had a youth-focused photographic competition with the theme of 'Glass in Our Lives.' In October, I believe, last year in Milano, Italy, there was one week of celebration related to glass. But there are celebrations planned all over the world. Let me go over and mention some of them.

One of the major ones will be the opening ceremony in Geneva on February 10 and 11. All of us all over the world was hoping that this will be an in-person celebration of glass. Well, you know, Omicron and corona is putting some damper on that, so it will almost certainly be a hybrid mechanism. And we have identified international experts in all fields of glass science, technology, arts. These are well-known personalities from all over the world. Kathleen is one of them, one of these honored speakers. So, they will be invited there to talk about various aspects of glass.

But even before that, in Lebanon, for example, they did a two-day conference with the title of 'Shattered Glass.' They will examine various aspects of glass fracture and things like that. We have celebrations planned in India, Egypt, China, many, many of them. So, there's the International Festival of Glass in the United Kingdom in August of this year. There's something called, again in U.K., British Glass Biennial. Then in Berlin, we have the centennial of the founding of the German Glass Society. In Canada, we'll have the largest gathering of francophone countries where they'll talk about many aspects of glass, its science, technology, and art. The closing ceremony will take place in Japan in December. I think, to be precise, December 22. So, there are many, many events planned all over the world in 2022."

De Guire: “So, Manoj, you are leading the activities for the North American International Year of Glass. So, can you just mention a little bit about what’s involved with that and what a highlight or two of those activities are?”

Choudhary: “I’d be glad to. So let me say first of all, Eileen, that it is a real honor for me to chair the Steering Committee for North America, mainly U.S. and Canada. This was set up in August of last year. Once the UN approved the resolution, we began to find out that there were all kinds of entities and individuals involved, and no one had a clear idea of who was doing what, where, in what time frame, and with what resources. So we felt there was a need to have a forum, a grouping, which can act as a place for people to share information, to coordinate their activities, to share resources. And that’s how this Steering Committee was set up. So, we have all the key constituents of glass represented there. We have the art and museum community, we have the glass industry, we have the glass science, we have The American Ceramic Society.

So, we have many, many activities planned. One of the most important ones that professor Richardson is leading is the National Day of Glass that will take place in Washington, D.C., April 5 to 7. We have the National Glass Association meeting in California in just a couple of weeks. The annual meeting of the Glass Art Society, and this is the 50th anniversary of them, will take place in Tacoma, Washington, during May 18 to 21. Then Alfred, Kathleen’s alma mater, which has something very eclectic planned for glass in July. This will cover art, science, technology, quite a celebration of glass. And at the same time, the American Glass Guild would be holding a jamboree [their celebratory Annual Summer Conference] related to glass at the Corning Museum. Then we have in Canada a whole series of events planned. I mentioned earlier, the gathering of the francophone countries. We also have the meeting of the Glass & Optical Materials Division in Baltimore in May 22 to 26. So, these are some of the principal highlights of IYOG activities in North America.”

De Guire: “A very busy year.

Choudhary: “Very busy, very busy year.”

De Guire: “Kathleen, you are the chair of the National Day of Glass, and it sounds quite intriguing. Can you tell us more about the activities that are planned, what the goals of the conference are, and how people can get involved?”

Richardson: “Well, first of all, it is going to be a very busy year, and one of the things that we as part of the North American region decided is that we recognized very early on that each of these activities could not be all things to all people. And certainly from the U.S. standpoint, we wanted a multitier approach to focus on aspects of society impact, education of key constituencies on glass, support to our industry, support to our academics, support to society in terms of our outreach, as well as highlighting glass in a way that serves to further stimulate interest and participation in our community.

So, we made the decision that the National Day of Glass to be held in Washington, D.C., in the center of our nation's capital to be able to dial in with industry experts, government experts, policy experts who take and make decisions that dramatically impact our community on the professional level. So, we have assembled a two-and-a-half-day program with CTOs, CEOs, national lab directors, leaders in education in glass, thinking about not only where we are right now but more importantly strategies towards the future of glass.

Our events will kick off with a reception, sponsored by Corning Incorporated, to be held at the National Academies on Tuesday evening, April 5. The Wednesday and Thursday programs will follow, to be held at the Madison hotel in central Washington, D.C. Our program consists of short presentations on the order of 20 minutes by some of these leaders we've invited. And, in addition, we will have multiple panel discussions related to glass and society, workforce training, aspects of cutting-edge science, as well as art and the impact of all of these activities going forward.

So, I am leading the convening committee for this National Day of Glass in partnership with my co-chairs David Pye and Mario Affatigato. And we have divided the efforts and are thrilled to have, in addition to the technical program, the panel discussions which aim to kind of coalesce the high points of the day on these various themes and discuss them in detail. We will have a celebratory banquet which will focus on art in our world, art glass in our world as the theme for the banquet. And we are thrilled to have Alicia Durán as one of our guest speakers, as well as some noted artists that will be contributing. The Chihuly camp, Northwest U.S., as well as others who will be providing outstanding glass art entertainment to our program.

And on The American Ceramic Society webpage at ceramics.org/iyog, you can find further information and details about each of these activities as their schedules and programs get filled with specific activities."

De Guire: "Thank you, Kathleen and Manoj. I think what's coming through loud and clear is this International Year of Glass celebration is as much about—and you even said this specifically, Kathleen—it's really about showcasing what glass does through all layers of our lives and encouraging people who are interested in solving grand challenges or interested in approaching the arts to consider glass and to understand more about the role of glass and these activities, the quality of our life in terms of, you know, how we can live it but also how we can appreciate it through the arts. So, very exciting times."

(music)

CONCLUSION

De Guire: "Well, it sounds like we're in for a wonderful year, lots of activities, lots of opportunities. On the podcast show notes, we will link to the websites that were mentioned for the IYOG, along with other resources.

I’m Eileen De Guire, and this is Ceramic Tech Chat.”

(music)

“Visit our website at ceramics.org for this episode’s show notes and to learn more about the International Year of Glass. Ceramic Tech Chat is produced by Lisa McDonald and

Until next time, I’m Eileen De Guire, and thank you for joining us.”