

Featured: Kliti Grice

10/02/2020

PRE-SCRIPT

In the fifth episode of BIOmarkers, the audio series that archives the oral history of organic geochemistry, we speak with Dr. Kliti Grice, who leads the Western Australian Organic and Isotope Geochemistry Centre as the John Curtin Distinguished Professor at Curtin University in Perth, Australia. In her interview, Kliti discusses her pathway to research, her colleagues in the field, and the qualities she thinks all good geochemists have.

SCRIPT

Fatima Husain: Welcome to BIOmarkers, an audio series that archives the oral history of organic geochemistry. I'm your host, Fatima Husain, and I'm here today with my series co-creators and fellow organic geochemists Angel Mojarro and Juliana Drozd.

Juliana Drozd: For today's episode, we spoke with Dr. Kliti Grice, who is the John Curtin Distinguished Professor at Curtin University in Perth, Australia.

Angel: At Curtin, Kliti leads the Western Australia Organic & Isotope Geochemistry Centre.

Juliana: We spoke with Kliti at the 2019 International Meeting on Organic Geochemistry.

Kliti: I'm Kliti Grice. I ~~actually~~ work at Curtin University in Perth in Western Australia. I'll describe myself as a organic geochemist who studies deep time, particularly molecules preserved in sediments from the greatest mass extinction events, the big five.

The other aspects of what I study are also alpha projects are looking at molecules in exceptional soft tissue preservation in concretions. And actually, I'm pulling out information about evolution from organisms which are still present today, but also extinct organisms and looking at their environments under which they lived. And then the beta project type things are in the applied area. So like mineral and petroleum exploration, which attracts industry and also is, is very important for society.

Fatima: We asked Kliti about how she came to the field, how she got into organic geochemistry in the first place.

I grew up in Yorkshire, in the Yorkshire Dales, on a hobby farm and I guess my best subjects at school were chemistry, geology, and art. And I guess what probably comes out of that is recreating the ancient environments that I look at now. So it's kind of the tools that I acquired then boils down to having really good school teachers and, and mentors along the way. So I think those are the key aspects. I did want to be a vet or a zookeeper, but I didn't end up doing that. So now I guess I look at remains of animals and plants. So that's kind of cool.

I did a classic sandwich degree where you work in industry for a year. So I did chemistry. And then I worked in my third year for a pharmaceutical company doing GC-MS and ICP-MS and then NMR and learning lots of analytical tools. But from that, I realized that I probably wasn't going to work in industry, but I might be more interested in doing research. And there was an opportunity to do what was i thought was a really cool project was to look up biomarkers in some Tunisian oils for my project when I went back to university for my honors year. And that brought me into the into the area of organic geochemistry. So then I went on to do a PhD at the University of Bristol with James Maxwell.

Fatima: So we asked her — what motivates you to get up each morning and to go to the lab?

Kliti: I love what I do. I'm passionate about what I do. So it's not it's not hard it's just a natural passion, curiosity and interest. So I like sharing the excitement of finding finding something new about evolution or molecules with the students and people I work with, said that's a huge reward, actually also mentoring students and early career researchers to take their steps into their career and find their way so I actually really enjoy the helping young people be inspired by doing great science.

Angel: To follow-up, we asked Kliti to tell us about memorable moments in her career.

Kliti: I really enjoyed going to Svalbard on a field trip to sample the largest extinction event, the Permian Triassic boundary, and actually going out in the field with with geologists, Richard Twitchett is a geologist on that project, then, and being a chemist actually being exposed to doing field geology in the research level, although I did geology at High School. So I find I just loved the Adventure of going to the Arctic. I love going on field trips and traveling around different places. I've been to the Pilbara and the Kimberly's. Yeah. So I just love that aspect. So and the other thing which I always remember, which was a big I guess a challenge but also a very important moment from a personal point of view but also professional point of view is with my colleague Roger Summons, we worked on the Permian Triassic extinction. And we had some great findings, which went to the journal Science but it got submitted the day I had my son to science. So I was like, important for me from a personal point of view, but also from Professional point of view and Roger was the one who submitted it on my behalf. So I think that was, you know, that day was very important for all obviously for many reasons. So that's pretty exciting to actually tell that story as well.

Fatima: We also covered a topic really important for scientists at all stages of their careers: mentorship.

Featured: Kliti Grice

10/02/2020

Kliti: I think, in terms of geochemistry, Roger is a huge role model for me. I would also say, James Maxwell, I know that that he's my PhD supervisor, yep, Sinninghe Damsté. I worked at the NIOZ as a postdoc for three years before I moved to Perth. So that was pretty, pretty interesting from a scientific aspect because I could do basically what I like to do so I actually worked on several projects relating to sulfurization of organic matter, but also, I developed a new project myself, and I was allowed to pursue that which was looking at the fate of sterols in copper pots through mesocosm experiments. So I actually did something quite different. And I think it was really important to go and work in a different lab, a different group, the (neoss?) to be exposed to other Scientists and other to see how other labs operate and learn something new. And actually, it's a very good cultural experience as well because it's on an island in the North Sea. And you meet lots of international people and scientists. And I got to travel quite a bit with some of the students. I even went to Peru on an expedition through the Andes. So that was so quite exciting too. So I had lots of great opportunities there. In terms of in Perth, Bob Alexander. He was in petroleum geochemistry, but he introduced me to petroleum geochemistry at Perth. And I also had mentors like (trying to think) the late John de Laeter who's the mass spectrometry expert.

Juliana: Kliti helped innovate geochemical analyses in Australia through compound-specific isotope analysis.

Kliti: I was given the opportunity to introduce the first compound specific isotope facility to any Australian University. So I actually was mentored to help put the grant in, and also set up that facility for the first time in an Australian University. So that was a very important step along the way. And then I had the fortunate opportunity to work with Professor Graham Farquar at ANU on looking at isotopic fractionations in modern plants. So that was another exciting field of research from looking at the delta d composition of plant waxes and hydrocarbons made by modern plants and I guess What's really exciting with Western Australia is that we have such a great environment. We have the stromatolites in Shark Bay. We have the Pilbara. We have great flora and fauna, and it's such nice weather as well. So it makes its just exciting being outside and seeing the natural environment. And yeah, I continue to do my hobbies like painting and mosaics and got lots of other interests as well, which is quite good.

Juliana: And, as always, we have to ask our illustrious guests: what makes a good organic geochemist?

Kliti: I think to be open minded about what opportunities there are and questions there are in terms of our discipline, I think there's such a wealth of information that we can obtain in terms of everything from archaeology, through to deep time through to climate change, to monitoring contaminants in the environment. So it's being open to interdisciplinary research and embracing that. And I think that this rather than just

Featured: Kliti Grice

10/02/2020

being in a narrow area was actually look around and hear what's going on and see the breadth of the discipline. I think that's very important to to be very holistic about the field. The other thing is to be technically, I think with a good technical attitude, so you know, what, what is required to obtain very difficult analysis? what's, what is real? What's contamination? What is a problem? So I think it's very important to be mindful of that. And to work with great international colleagues actually, to go out and meet people and talk to people about their science because they're really inspiring, they're really excited. It's such a close, friendly community that I would definitely encourage the younger generation to do, those kind of things is be, Go and meet the great community that we have and to just Run, go with your passion, go with what you really like doing because I think whatever you do as a career, you should really enjoy it. And that makes it enjoyable for you makes it enjoyable for other people. And it's it's a great reward to be able to do good science.

I think it's it's really important to build actually, one thing's Really important is actually to look at your team and look at everybody's different skills and have a diverse team with, with different skills that everybody has a contribution to the projects. And I think that makes such you know it makes it So you the team glue together really well and I think that's really really important to be successful is to have to reward everyone who works around you and and appreciate their contributions a lot.

Fatima: Thanks so much for joining us today, and a sincere thank you to Dr. Kliti Grice for speaking with us and for sharing her incredible insights.

Angel: And now, for a special message:

Rich: [insert]

Next time, we'll speak with Dr. Chris Reddy at the Woods Hole Oceanographic Institute. To tune in, go to [summons dot m-i-t dot edu backslash BIOMarkersPodcast](https://summons.mit.edu/backslash/BIOMarkersPodcast). BIOMarkers is produced in the Summons Lab at the Massachusetts Institute of Technology.

+++