

Things You Can't Live Without

S2 Episode 8 – Sabrina Ghayour on her favourite knives, learning from others and butternut squash best practice

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Dr Anna Ploszajski:

Hello and welcome to Things You Can't Live Without, the podcast where I, material scientist Dr. Anna Ploszajski, ask a very special guest to tell us the one thing that they can't live without. As well as that, we interrogate a host of experts to find out how these items are made, where their components come from, and how the future of those items is being planned for.

Joining me today is chef and food writer Sabrina Ghayour. Welcome, Sabrina.

Sabrina Ghayour:

Thank you so much.

Anna:

And we're also joined by Nigel Steward, Chief Scientist at Rio Tinto. Welcome back, Nigel.

Nigel Steward:

Hi, Anna. And hi, Sabrina.

Anna:

So, Sabrina, what's the one thing that you can't live without?

Sabrina:

I have to say it has to be a really good quality knife. Can't live without them in my line of work.

Anna:

Beautiful. Nigel, are you a knife guy? What are your kitchen skills like?

Nigel:

I can cook and I use a knife for once in a while. I like those, you know, Damascus can knives with the funny patterns on them.

Anna: [00:01:00]

Yeah, as a materials nerd, that's talking my language. I love that. And we're going to get more into the materials in this as well. The theme for our episode today is about partnerships, the tools in the kitchen that are our trusty partners. And we're also going to be learning about how important collaboration is across industry and how the best changes are made when done together.

So, Sabrina, you specialise in Persian and Middle Eastern cooking with many award winning books and TV appearances. You work across various roles as chef, writer and food consultant. Which of those roles brings you the most pleasure and why?

Sabrina: [00:01:45]

You know, I would have to say I am definitely a, it sounds so corny, I'm a people person, but I really am, I really revere interaction with people. I don't cook in a restaurant, so having contact with not just chefs, but also like a customer who's just come to eat food is just, I love that, so I think it, also hints at how hosting is so part of my culture as well. So, it encompasses so many things, this chef role. It's a sum of many parts.

Anna:

Tell us about this knife then.

Sabrina:

When I was a kid, I didn't use this kind of knife. I wasn't really aware of these sorts of bigger chef's knives, but I used just the small knives that you just find in the kitchen. And when I became a chef, I started really looking at the kind of product that I used. Because you want sturdiness, you want stability, you want durability, you want something that's going to aid the fluidity of movement and chopping, specifically. And a lot of years chopping. So much so that it's done my back in, but you know. Well, because it's a repetitive act, so you really do need something that's going to make movement flow and also do as much work as you can in a short space of time because with a good knife, you know, you have speed on your side.

So, I started looking for a good knife and I met at a trade show a lady who owned this knife company and she was just so awesome. Those are my days just starting out. So, I didn't have a lot of money and she was very kind and said, do you want to just try some of my ex demo knives? So, I just chuck me postage money and that's how it started.

But moreover, lots of other celebrity chefs had endorsed her knives just through their love. And I thought, oh, this must be a good brand. Chefs use big knives. Usually 20 centimetre is, is on the money. And that's what's actually called a chef's knife. It's about, for me, having a handle that is weighted. So, this weight gives you steering almost in the same capacity that a rudder of a boat to some element gives you sort of steering of a boat, and it guides your movement. And I think probably in non-professional cooks, it gives you confidence because you become better at chopping because your knife is a good quality knife.

Anna: [00:04:00]

Definitely. Yeah, Father Christmas bought me a chef's knife for Christmas, and I love it. I felt so professional the first time I used it because never before had I chopped a tomato, and it actually went through first time.

Sabrina:

Although you need to beware with tomatoes, peppers, grapes, those are the real no no's when it comes to a knife that's not a serrated edge because they do blunt them.

Anna:

Oh no

Sabrina:

So yeah, I would say with a tomato, poke a hole using the tip of the knife and then use the fatter end of the blade at the bottom, which is the less used end. So, you will more balance out the bluntness of your knife over time.

Anna:

All the top tips are coming.

Sabrina:

Better serrated edge all the way for a tomato.

Anna:

Excellent. So, your knives. Do you know what they're made out of? What are the handles and what are the blades?

Sabrina:

I'm reliably informed they're made of steel, and I would say that that has a massive factor to do with it. Stainless capacity is from hygiene and, you know, from my perspective they don't rust very easily if you look after them. The handle on these ones are called tang handles, so I'm sure it's a composite that encapsulates the steel itself. So no, I'm over to you. If you know about these knives, I'd love you to tell me more because perhaps I take for granted one of my most important bits of kit and I don't know much about it.

Anna: [00:05:15]

Gosh, well, steel is probably one of my favourite materials. And Nigel, you mentioned your knife as Damascus steel. It's a very special sort of steel. If listeners can imagine it, it's the one that has a kind of mottled effect on it, mottled look. And that's from folding different sorts of steel into the same knife.

Your knives, I think, are very special. So, one of the big problems in material science is you can either have strong and hard or not breakable. So, brittleness and hardness always go together. So, if you want a really hard knife that you can sharpen to a really, really sharp edge, it's going to be quite susceptible to breaking, could shatter when you're using it. So, knife makers have to try and balance these two properties, and what they do is they will often layer different types of steel, and that's what you see in Damascus are those different layers sort of folded together. So, you have a very brittle but hard and easy to sharpen blade wrapped around more soft stainless steel. So, you can have basically both of those beneficial properties that you mentioned together in the same blade.

Sabrina:

Wow, that's quite deep. I mean, you really do need to look after knives.

Nigel:

Oh, we sent ours to a sharpener down the road at the kitchen shop. But I have a question for you, Sabrina. Back in the, like, late 1980s, early 1990s, people started to make kitchen knives out of ceramics. Toughen zirconia ceramics. These are the knives with the white blades. Have you tried any of those? And what's your thoughts on those, compared to steel?

Sabrina: [00:06:45]

My mother always told me if I didn't have something nice to say, that I shouldn't say anything at all, so..

Nigel:

I'm just intrigued as to why they haven't really taken off.

Sabrina:

You know what? It's not for me, but I also hate judgment on people. I really, it really frustrates me when you go, no, you shouldn't do that. That's like this. And I think just that that's an adult with their own mind. Let them do whatever they want to do. And the one thing I love watching someone as iconic as Nigella on screen, she always apologises for her terrible little knives that she loves using. And I just think that's it. She uses what works for her, but if you're, let's say, Greek or Turk and culturally, and Persians as well, they use these tiny knives that are so dangerous. The blade always goes through an apple or a pear straight into your thumb. But, I mean, they don't cut themselves, but it does open up the capacity for danger so much more.

So, it's just what you're used to, really. And I just don't think that those ceramic knives..they don't have the right movement and the right stability that I am personally looking for. Plus, ceramic, I'm sure I could probably break it. Give me a week and it would probably be in the bin, so I am a bull in a china shop when I've got eight hours of cooking ahead. So, I need something sturdy, durable and high quality, you know, for the longevity of it rather than being fancy.

Anna: [00:08:15]

Yeah. One of my big things, you know, I wanted one knife that I would hopefully have for many, many years and that will do pretty much everything that I need it to do. I also have one cast iron pan. I have one stainless steel pan, and I have one sort of casserole dish and that's it. I'm really into the stage of my life where I just want good things that are going to last a long time. Is your kitchen like that? I imagine you have a few more things than me.

Sabrina:

I think if it was just my own domestic kitchen, and my kitchen is my office. Unfortunately, I haven't quite made it into the field of having a proper test kitchen outside of my own domestic kitchen. If it was just my own kitchen from just me and my family, it would be very much that. And you're absolutely right. I do have those iconic, you know, cast iron pans in many colours and they're great as long as you know how they work on which cooking things.

There's so many givens. It's not just. That's a whole other conversation for another day, but it's like that old adage where you, people say, oh, I like to just invest in good knitwear. That's a great thing. If moths don't sabotage it, it is very good to invest in something that's good quality, basic and appearance, but has durability and a good bag, a good jacket, a good whatever. There is a beauty to buying something that you treasure because you know how much it costs, but you also know how much it serves you in the house. So yeah, for me, I am definitely that girl and I really appreciate those things. So, I get absolutely incensed, like incandescent when people take my good quality pots and they're in the sink. And then the kids, my husband or whoever, throw the knife straight into the pot and I'm like, every, every alarm bell in my being goes off because it's mistreating two of my key equipment pieces.

Anna: [00:10:15]

I sometimes think of cooking as perhaps quite a solitary pursuit, but you've mentioned that you work with lots and lots of different people and you partner with lots of different people. How do those partnerships serve you in your work?

Sabrina:

I think being solitary comes naturally to me. I'm an only child. I'm in my element when I'm left on my own. I like it, but I also thrive from interaction like a, like a minicomputer. Like I like taking in other people's experience. I really value that because I'm not a master of everything. I'm very well aware that it's, you let everybody contribute to what they know and then you really learn because you learn what other people do.

Anna:

Yeah. Nigel, what about you? How do partnerships come into your world?

Nigel: [00:11:00]

Well, it's interesting how it's evolved, you know, as a company we've been around for 150 years and I think we've gone from this sort of siloed approach in, in the world where each company kind of makes what they make and provides them as a product at the end. And we've gone much, much more towards a world where we're all trying to really fulfill society's global needs. And therefore, because of that, we have multiple stakeholders. You know, it's not just about us as a company. It's about our customers' customers, the communities in which we work, our shareholders and our employees as well.

So, what does everyone collectively want? And that sort of forces you to think about how you collaborate with everyone to produce what we really need for the future. And so, it's very much about listening to what everybody needs and wants and trying to work together collectively to come up with the right solutions.

Anna:

Can you give us an example of maybe one of your favourite partnership that Rio's embarked on.

Nigel:

Well, if we touch on one steel, we've just been talking about steel and we've got several partnerships in that space. One, for example, is with the car industry. BMW is one of our partners and they're very, very keen on decarbonising and reducing the ESG footprint of their products. And that aligns very, very well with what we want to do as well. So, we are actively looking at how we can decarbonise steel production. For example, with BHP and one of our steel companies, BlueScope in Australia, we're looking at developing a particular melter technology to enable us to produce steel with a low carbon footprint. We're also partnering with some steel companies, big steel companies in the world like POSCO, BAUWU and Nippon Steel to, to decarbonise the primary steel production.

Because one of our big challenges when we think about climate change is we have what we call our scope one and two emissions, which are the emissions that we generate from our own processes. But our biggest challenges are scoped through this, so this is when our customer takes our iron ore and transforms that into steel, and they use a lot of carbon to do that, which produces CO2. So, there are alternative ways of actually smelting the steel to eliminate carbon using things like hydrogen, for example, or electrolysis processes. And we're working actively with those customers to try and achieve that. Collectively trying to produce a decarbonised steel product that you can then provide to a car maker like BMW, or, in the case of Sabrina, a knife maker, to make a low-carbon steel blade.

Anna: [00:13:15]

Is there anything that you sacrifice when you partner with others?

Nigel:

I don't think so. No, I think it's more of the opposite. I think we all have to realise that we don't know everything that we need to know to solve problems. And partnering with people who bring complementary skills to bear, I think is really, really important. If we were trying to do it on our own, there is that always that temptation to think I can go quicker because I don't have to manage relationships, but you don't end up going very far because you don't have all the capabilities that you really need. So, it's really bringing in all of those complementary skills, building that up as a collective and going slowly, but surely, is the way in which we'll succeed.

Sabrina:

Do you recognise that in your work, Sabrina?

Sabrina: [00:14:00]

Honestly, I was so mesmerised by what he was saying. I'm just realising how much I don't really think about what goes into one of these knives. I was literally, my mind is just utterly blown. I thought I don't think about the steel and then I don't think about what they have to do to minimise these things. And I guess I don't recognise obviously the level of seriousness involved in that kind of production. But you have to evolve. Like you have to change, you have to adapt, you have to move forward, and you have to take into account time, environment, what the world wants today, how things need to be traded. You know, I trade my recipes, for example, I can't liken myself to this really integral, important work. But on some levels, I think we all have elements in all of our jobs that we need to suddenly look at things that we weren't perhaps taking into account before. I'm sure you do too. Things that are suddenly irrelevant or have become very relevant as a course

of what's going on in the world, the planet, people's demands, etc.

Anna: [00:15:00]

What about in terms of partnerships that you create. Maybe, have you got an example of a specific recipe that you co created with someone?

Sabrina:

So, I'm too stubborn to co create a recipe because most of my recipes are so simple, they just don't really require a second person, but I have had partnerships with other people and other venues in creating. Let's say, a good example is I had a partnership with Fortnum & Mason last year where we co created a gin. I know it sings to Britain because we do love our gin, don't we? But it was just a really interesting process of a huge series of things I didn't understand but had this idea of what I wanted to produce. And as with the knife process, you just got to trust those people that know better know how to do it. So, I was thankfully in expert hands in the distillation process and we produced a beautiful pistachio gin.

Anna:

Oh, cool. Yeah.

Sabrina:

Collaborations essentially. It's very much part of what I do career wise. It's almost touches every single job that I do really in one sense or another because you're always better when there are other great people around you.

Anna:

Definitely.

Anna: [00:16:15]

Nigel, you mentioned that there are so many stakeholders in Rio Tinto itself and then in the sort of wider collaborative space. Is there ever a case where there's sort of too many cooks can spoil the broth when you're looking at kind of big problems like decarbonisation, for example?

Nigel:

I think it is a really good question. I think you need to think very carefully about choosing the right partners. And you need to choose the right partners that share the same strategic goals and values as you, and that have the same sort of, I think, organisational and financial capacity to sort of follow you on the journey and to be with you.

We have a great example, I think, and this is in the case of aluminium. So, I'm sure you use a lot of aluminium in the kitchen, aluminium foil and things like that, Sabrina. But one of the things that we've always tried to do as an industry is to produce aluminium, but without producing carbon dioxide, and we created a joint venture called ELYSIS™, and this was actually precipitated by one of our customers, Apple, that uses a lot of aluminium and things like iPads, iPhones, and iMacs and things like that. And we got together with one of our competitors, Alcoa, who'd discovered kind of the new material and ourselves, we brought the complementary skill of actually being good designers of aluminium smelters.

We also worked with the government of Canada and the government of Quebec who've, actively contributed to the funding of this and combining that with clean, renewable energy from Canada's hydropower. And we all had this sort of shared vision for how we could fully decarbonise the production of aluminium using this new technology. And we've actually been successful in producing the world's first smelted aluminium without generating CO2. And some of that first material that we produce from our pilot cells has gone into some of Apple's products like the MacBook and the Apple iPhone SE.

Sabrina: [00:18:00]

So, wow. Yeah, my mind is just blown on so many levels. I'm just always astounded at what goes on in our world on a daily basis. That's just every day we don't, most of us don't think about. It's incredible.

Anna:

Sabrina, for your partnerships, I guess I'm thinking of you and your trusty knives. Do you have a particular fruit or vegetable or item that you love most to chop with your knife?

Sabrina:

It's not because it's my favourite fruit or vegetable, but it's just really where suddenly the type of knife that you're using, it really comes into play and there are better choices to be made and not so great choices to be made. It's butternut squash. It is. Why do we love the butternut squash? In this country, in England, we love a butternut squash. It has had heightened fame for the last 15, 20 years. But it's such a pain to a peel.

Anna: [00:19:00]

Yeah.

Sabrina:

It's, it is the stuff of hospital trips for a lot of people, I'm sure, because its skin is particularly resistant. And that's why you really do need to have a very, very good knife to take care of it. But in terms of chopping it, you do want a particular knife that comes down on a not slightly angled blade, like it comes down and it's just a totally flat blade at the bottom. That is quite important to the vegetable itself. So yeah, that sounds so geeky.

Anna:

When you get on a roll, you're in good company for geekiness for sure. I have a question for you about using my new knife. When, actually I cut a butternut squash recently, I chopped it down and then maybe because it's so sharp or something to do with the vegetable meant that the butternut squash just stuck to the sides of the knife. How do you stop that?

Sabrina: [00:20:00]

You don't. So you can do something, you can just take a little bit of olive oil and just grease the blade of the knife if you wanted to, but then you have to be very, very careful. So next time you do it. Take the stalk end top off flat, take the bottom end, not too much because you don't want to use waste, and then you have two flat surfaces, but roll it quickly on its side. Cut it in half, so you'll have the side that will have no seeds, and that's one portion, and then you just start with a flat surface, so the cut side down, you just slowly start sliding the skin off with your knife and then your hand is never in the way.

And yes, it will still sometimes get stuck, but then you can afford to apply a little bit of oil if you wanted to, but I don't actually think with that method you need to. And then you can just chop it into bits and it's just safe. And also they stain your hands really nicely. Totally orange hands for like days basically.

Anna: [00:21:00]

Absolutely. So Sabrina, I'm going to transport you to a terrible new world where we have no more new steel knives. And also, I'm going to take away all of your old steel knives. What would a world for you without your knives be like?

Sabrina:

Jokingly glorious, because I wouldn't have to cook again. But on a very serious note, yes, it would have a massive impact. I wouldn't be able to do as much as I do. But just like clever little humans that we are would probably come up with something, but really would it be as effective? No,

because otherwise steel knives wouldn't be the top choice of chefs. Where there's a will, there's a way.

We didn't always have fancy knives, maybe porcelain knives that were suddenly less redundant. I don't want to think about a world where we couldn't have steel, to be fair, because I think it would on a larger scale, affect buildings and structures and bridges and travel and very soon we would be pretty helpless, I think.

Anna:

Yes. Yeah.

Sabrina:

I think so. So knives would be very low on my agenda of panics.

Anna:

And Nigel, what's coming in your future in terms of partnerships that you are excited about maybe? Any that you've got that may, yeah, make a big impact?

Nigel: [00:22:00]

Well, I think it was interesting your last question to Sabrina about imagining a future and that might be different from today and what we will need in that future. So, I think one of the things that I'm really excited about, one of the partnerships that we began last year. We realised that we needed more insights from people who could see a future that we couldn't see. So we went to the universities and we created a network of five universities. It's Berkeley in the United States, Australian National University in Australia, WITS in South Africa The University of British Columbia in Canada and Imperial College in London. And Imperial is leading the centre for us. It's called the Centre for Future Materials. And what we're doing is sort of bringing academics, not just from the sciences, but also the social sciences to try and help see what the future is going to be like and what the materials of that future will be like and how we can then develop new technologies to produce those materials with low carbon footprints of course.

The first challenge that they set themselves was around copper because if we do decarbonise the world, we're going to have to electrify everything. We're going to need an exceedingly large amount of copper so there's a question of how can we unlock more copper in the world or how can we actually reduce our demand by engineering products differently so that we can still meet our goals in decarbonising the world but in a much more sustainable way.

Sabrina:

Gosh I wonder what a copper knife would be like. Copper pans. I wonder if it'd be as effective. I'm sure it would. We're covered. We don't need to panic about a knifeless world. It's just, yeah, so low on your radar, I'm sure.

Nigel: [00:23:45]

Well, I think in the realms of material selection, so you're talking with two material scientists here, Sabrina, so you would tend to, you would tend to go for the steel definitely for the strength and as Anna was mentioning earlier, you kind of want that hardness for the knife.

Sabrina:

Yeah. Copper doesn't have that,

Nigel:

Copper doesn't have that. It's very soft.

Sabrina:

See, just as soft as my brain. I wouldn't even appreciate that that was a factor. You just think, oh,

I've seen it in the kitchen. It's obviously going to work. I'm sure they'll just figure it out in the Centre for Future Materials.

Anna: [00:24:15]

Well, we've come to the end of our conversation. Thank you both so much for being on the podcast. I think tonight I'm going to go home and chop my butternut squash with a bit more verve, a bit more precision, a bit more joy, and I'm not going to put it to my tomatoes. That's what I've learned from you.

Thank you both so much to my guests today, chef and food writer Sabrina Ghayour and Rio Tinto's Chief Scientist, Nigel Steward.

If you want to learn more about the ELYSIS™ process, head on over to the show notes and click the link for more information.

And that's all for this episode but remember you can listen to more episodes of *Things You Can't Live Without* wherever you find your podcasts, and don't forget to follow, rate and review us to make sure that you never miss an episode.

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