



ACRONYMS: Abbreviated Code Rarely Or Never Yielding Meaning Nerdin' About Podcast Transcript, Season 2 Episode 2

Michael

Hey everyone, welcome to Nerdin' About, I'm Space Michael. With me as always is someone who's not only good at catching rats, crocheting, knitting, but she's also pretty good at playing the guitar and singing, and that's Dr. Kaylee Byers.

Kaylee

Wow, that was a deep cut. Where did that come from?

Michael

Well, that came from reflecting on Banff with our guest today, and how on the last day at Banff, you brought out the guitar and sang this little song, and I thought it was really great.

Kaylee

I did a little rendition of "Knocking on Heaven's Door", but about Chronic Wasting Disease instead. Way to throwback! So, we're going to reminisce a little bit today, because we actually met our guest Jay Ingram a year ago at the Banff Beakerhead Science Communication Workshop, and it was an incredible experience where Michael and I learned a lot about how to be better science communicators, and maybe also better people? So, it is our absolute delight to introduce to you Jay Ingram, who is the former host of CBC Radio's Quirks and Quirks, and Daily Planet on Discovery Channel Canada. Jay has also written 19 books, several of which are currently on my bookshelf, including The Science of Why Volume 4, and Theatre of the Mind. On top of all of that Jay is also the co-founder of the Calgary arts and engineering smash up called Beakerhead that we just mentioned. Hi, Jay, was that a good enough intro for you?

Jay

Your intro was a bit more interesting, though. You know what, we take no responsibility for trying to make you better people. I mean, that was really up to you, we hope we could make you better science communicators. Let's not forget that Michael came to Jasper last October, and was part of a musical show that me and my band did about the furor over the 50th anniversary of landing on the moon. So, Michael played a starring role as a guy who had lived and worked on the moon, and hated it. So exactly what I wanted at the end of that show, because you know, people that come to the Dark Sky Festival in Jasper, they're kind of misty eyed about stars and galaxies, and going to the moon is like a big deal. I'm sure many of them would like to do it, and I kind of felt having read the appropriate dark science fiction about the moon that we needed another voice, and who better than the guy who can be really dark when he wants to be: Michael Unger.

Michael

Well, we'll get into that, as we're going to talk about optimism and pessimism, as I think that's sort of a theme as we're talking about science communication. Jay there's such a push right



now towards better science communication. There's a growing community of science communicators who work to communicate science. In your opinion, are scientists becoming better science communicators?

Jay

I have to go. (laughs) Look, I mean, you're definitely right, there's much more attention being paid. I didn't call it lip service, you'll note, I called it attention being paid to communicating science better. I would say that a greater percentage of young scientists are more interested in that at this point in their career, than was true twenty-five or forty years ago. So, I think that's encouraging. I think that once you get to principal investigators, and higher up, there's a definite lack of interest. You might think, because I've done this all my life that, that I would resent that, but I totally understand. A scientist has on his or her desk, grant requests, teaching responsibilities, administrative responsibilities, research, and then you're asking them to do some courses, or do some presentations, do some science communication, there's not a lot of room on that desk for that, and it's not really generally rewarded in academia. So, I'm not surprised that once people are fully ensconced in their careers, they're not that interested in it. So that's part of it. I think there's probably been an upswing, but I also think that, you know, science communication isn't easy. Doing it well is not easy. It takes a lot of work. It takes a lot of skill, and it takes a lot of time to do it well. So, I applaud the speaking out about the need for science communication. I just wish more people put their money where their mouth was.

Kaylee

Yeah, I think that's a good point. That's something I've definitely experienced having gone through academia, there's been very few – and I've been lucky to have a few people who are very encouraging, of actually doing science communication, and working on skills, going to things like Beakerhead, and getting better at it. But, there was also a general mentality that it was sort of a waste of time, you should just be investing in publishing papers, for example, or speaking to other scientists.

Jay

Hey, you're a scientist, that's what you should be doing, science. You know, we only have to look to the United States regarding COVID, and look to some provinces in this country, including Alberta, and see that the science messages are not getting through the way you'd like them to, because they're meeting the implacable foe of politics, and let's not let the economy slow down. There are great communicators about COVID out there. They're not being listened to as much as I would like, and being listened to is part of good science communication too. I mean, it's hard, like doctors, I don't know how doctors can spare the time to talk about it, because if they work in a hospital, they're overwhelmed. So, all I'm saying is, yeah, I'd love more people to get involved. I have seen people go through the Banff program that we started back in 2005, and become exemplary science communicators. That's really good. I'm glad you guys are doing this, and I just hope that momentum builds.



Kaylee

So, if we think a little bit about those principal investigators, those PI's. I mean, one of the ways that they are communicating science is through academic papers. You might be able to engage with that, if you're not a scientist and you might not. What are some of the things that principal investigators are doing that are keeping people from engaging with papers? Let's say you've written it, you've made it open access. It's there. What are the other barriers there for people to actually understand what's happening in that paper?

Jay

The way you wrote it! (laughs) I'm so glad you asked that question, Kaylee. My point is this science communication is hard, and the scientists aren't making it any easier. Let me tell you first about acronyms. Now there's different definitions, but an acronym in my mind should be something that is a string of letters, but sounds like a word. Let me give you some good examples: UNICEF, AIDS, POTUS, RADAR, radar is radio detection and ranging.

Michael

Laser is one as well.

Kaylee

I'm glad that you told me what radar was. I didn't know.

Jay

Yeah, well, I'm not sure I would have picked it up right away. So those are true acronyms. Funnily enough, the World Health Organization, nobody ever says WHO I don't think, that doesn't really count. Then there are others that are equally familiar to you, but don't really make words: PTSD, NDP, DNA. So, I like the definition that says those ones that I just mentioned that are collections of letters, but don't make kind of words are not acronyms, they're initialisms.

Kaylee

Initialisms?

Jay

Yeah, they're initialisms, they're not really acronyms. My favorite paper of the last several months was published in an online journal called eLife, it's a good journal, but here's what these people did, and this is mind blowing at many levels. They looked at 25 million titles of scientific papers, plus 18 million abstracts between 1950 and 2019. So, 70 years' worth of science publishing looking at over 40,000 combined titles and abstracts. How many acronyms do you think they found? 1.1 million acronyms. 1.1 million! The number of acronyms per 100 words, has more than tripled in that time from 1950 to 2019 in titles, in abstracts it's more than quadrupled. I want you to consider something funny. There are 17,576 possible three letter acronyms like DNA. What percentage of these random possibilities have actually been used as acronyms in the scientific literature?



Kaylee

I feel like I'm in my comprehensive exams right now.

Jay

Well just take a shot, 15,576 possible three letter combos.

Michael

Is it more than half?

Jay

I'll give you 60%.

Kaylee

I'll take 40% for \$500.

Jay

94%! (laughs) There's many that have never been used, but if we wait long enough, they will be. Now, how many acronyms are just used once in one scientific paper, and are never used again?

Kaylee

Oh, my gosh, 30%?

Michael

That completely defeats the point of the acronym! Isn't the whole point to shorten up a group of words?

Jay

Exactly! So, you might think that the point is to cut down on the number of words in your papers, but in the end, the effect is the opposite. Let me just give you a couple more. How many are used a lot? Now remember, we're talking many millions of titles, more than 40 million titles. How many are used, say more than 10,000 times?

Kaylee

10%?

Michael

I'll go higher. I'll go 30%.

Jay

Yeah, no, you should have gone lower. 0.2%! (laughs) Their lifetime is shrinking, too, and the time between the first appearance of an acronym, and its second appearance is getting longer and longer. I think because it's the same scientists who invented it, who will use it again, and



they have to take time to do experiments, and prepare a second paper because nobody uses their damn acronym! Now, acronyms help. There are a lot of people who have pointed out that they don't help at all, because by the time you get halfway through the paper, and six acronyms have been thrown at you, you can't remember which one is which, you have to keep flipping back. You take more time to read the paper, and understand it than it would have taken the authors to spell them out. My point is this is not making science writing any easier. Okay? They are not a boon to communication. They're a barrier. I don't want to get too serious about this. I can ask you about the top five acronyms. I wonder how many of you guys know? DNA, you know that one.

Kaylee

Yeah, I was going to say DNA, and then I was like, Wait, is that an acronym or an initialism?

Jay

Doesn't matter. Let's call it an acronym for these purposes. You do know what it stands for?

Kaylee

Deoxyribonucleic acid.

Jay

Did you know that back in the 40s and 50s, especially in Britain, it had a different name? It was desoxy, there was an "s". Anyway, CI is the second most commonly used acronym.

Kaylee

Confidence interval?

Jay

Yes! You win a beer!

Kaylee

Yes! Is another one OR?

Jay

OR is in the list, but OR is one of those ones that actually has more than one meaning, and that creates a problem as does this one: IL. It has two meanings in the literature.

Kaylee

What field of science are we in?

Jay

I'm not giving hints, it's supposed to stimulate clarity.



Kaylee

It's mostly just making me sad.

Jay

Well, one is biological, and one is sociological independent living. But what's the other one? Interleukin. HIV, human immunodeficiency virus, of course, and mRNA messenger ribonucleic acid which is in the news right now, because the COVID vaccine that Pfizer is creating is based on mRNA.

Kaylee

Yeah maybe the use of mRNA is going to pass IL.

Jay

Maybe eventually make its way into the OR. (laughs)

Michael

So, I guess Jay. What this is leading me to start to think about, because we're talking about abstracts, we're talking about papers that are generally written for other scientists, but what we're talking about here is communicating to the general public. That may not be necessarily is the job of the scientists, but quite often is being done by non-scientists. Is this really where our problem is right now is that we have perhaps people interpreting these papers, and either getting confused, or really reading the paper the wrong way. Where is this problem with the scientists using these acronyms, and the general public that needs to understand it?

Jay

Yeah, you're right it's not a direct link to the general public. The only point I'm making here is that if you're a science communicator, and you want to get the information out of a scientific paper quickly and efficiently, and clearly, acronyms are not helping. Let me just put out a couple of little favorite things that I should tell you about this. The American Chemical Society produced something called the ACS Style Guide. In the ACS style guide, it advises writers to quote, "avoid abbreviations in the title of a paper". The ACS Style Guide. (laughs) Now I just came across one today a new one, the Drosophila Individual Activity and Monitoring Detection System, which of course we will all come to know better as DIAMonDS.

Kaylee

So, they decided they wanted it to be DIAMonDS first, probably.

Jay

I don't know. I'm sure there was a better choice. Michael, you'll like this. Douglas Adams, The Hitchhiker's Guide to the Galaxy, pointed out 20 years ago that when you're talking about the internet, WWW, the shorthand, actually has more syllables than "world wide web". Anyway, the people who take this a little more seriously than me suggests that it's up to the journals, and some journals have started to put in place guidelines, like no more than three acronyms in a



paper. Okay, let me move on: readability. This was a mega experiment of the same kind over a longer period of time, but fewer data points. In 700,000 abstracts from 1881 to 2015 they tested the readability with two different methods that look at the number of syllables per word, the number of words in a paper and the difficulty of individual words, and there's been a steady decrease in readability because there are more syllables, more words, more difficult words. I got to tell you for my money, the best paper ever, on this was published a while ago in 1992 by Donald Hays, a sociologist at Cornell who's now passed away, called the growing inaccessibility of science, and he was concerned about non-specialists. So, here's what he did. He rated what's called the lexical difficulty, the number of difficult words in pieces about science that people might read. He set the scale, a vertical scale, so zero was an international English language newspaper, The Guardian, The New York Times, Washington Post, Globe and Mail, that's zero, the level of language in that. Everything higher than that is more difficult, everything lower is less difficult. So, papers in Nature, Science, and Cell in the high 30s to mid 50s above zero.

Kaylee

I believe that.

Jay

What's more interesting is what's below zero. Discover Magazine, good science magazine I'd say. Minus 4.7. Adult books, fiction, American.

Kaylee

Sorry, adult books? Like sexy books?

Jay

Novels. Adult books, fiction, American, minus 19.3. Ranger Rick, which is the American equivalent to Owl magazine minus 22.

Michael

I had a subscription to that.

Jay

Cool well you were reading at a minus 22 level. (laughs)

Kaylee

I don't know if that was a burn, but it was pretty good.

Jay

In the end, he'll be proud of it. Comic books, British and American, minus 26. Children's books, fiction British minus 27. Children's books, fiction, American, minus 32. Here we come my fellow science communicators to the nub of this. Adult to adult, not adult in the sense you were just saying Kaylee, adult-to-adult conversations, casual, minus 41.1. 90 points away from the



science papers. Then there are two more data points, mothers talking to their three-and-a-half-year-old children, minus 48. That's only 7 points lower than adult-to-adult conversations.

Kaylee

Well, adults are just large children. So, yep.

Jay

The final data point, minus 59.1 which was farm workers talking to their dairy cows.

Michael

I was going to say, Kaylee, you talking to your cat. Where does that fall in?

Kaylee

I use acronyms with her all the time. So, I'm probably at a solid plus 10.

Jay

When I first came across this paper, and Donald Hayes was still alive, I called him and asked him specifically what farm workers were saying to their dairy cows. He said, "Well, not much, mostly swearing".

Kaylee

But those are just a bunch of four letter words, right? Yeah, they're very short.

Jay

So, my point is this though, adult-to adult-conversations, which is really what we're having now, a casual conversation, this is where I think science communication should rest, and it's 90 points less difficult than a typical scientific paper. So that's the challenge, it's not just in the language, it's the way scientists approach a problem versus the way somebody who isn't a scientist might think of a problem. How do you develop this thinking so you can actually devise an experiment that might give you an answer? It's a completely different way of thinking for many people. I've always felt the goal is adult-to-adult conversation is what you want to achieve.

Kaylee

Yeah, I like that. That's something that we have always enjoyed about Nerd Nite, as that's the whole point of it, it's essentially adult-to-adult conversation with beer.

Jay

Exactly, and that's why it's successful. Now, I don't want to hog this podcast, but I could take two minutes, and tell you about the phantom article.



Kaylee

Oh, I would love to know. I just thought you were one of the hosts, Aren't I a guest? (laughs)

Jay

Now that was a burn. (laughs)

Kaylee

Tell us about the phantom paper, I would like to know, because you did tease me with the phantom paper a few days ago, and so I've been sitting on the edge of my seat waiting to hear about it.

Jay

Okay, there's a paper that you can find mentioned 400 times in Web of Science, and many more times in Google Scholar. It is called the Art of Writing a Scientific Article. It's in the Journal of Science Communication, Volume 163, Number 2, pages 51 to 59. The authors are Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., published in 2000. It does not exist. The article doesn't exist, what I just read you, the citation of it, was given as an example in a volume that was trying to suggest to people how you should write a bibliography. Somebody has made it up off the top of their heads, and it now has been quoted hundreds, and hundreds of times. So, there was a guy who decided to try to find out a little bit more, and he looked at, of all the articles that quote this phantom paper, he took the top 20 of them that were the most cited, figuring they were the most credible, he found 12 of the 20. In 8 of the articles, this phantom reference was used to support a statement in the article that was completely unrelated to the topic of the phantom paper. That is, you know, writing a scientific article. In 3 of the 4 remaining articles, the reference wasn't even actually listed in the article itself, although it was in the references. So, you could find it in the references of the paper, but you couldn't find it anywhere in the paper. In the last case, the phantom paper wasn't listed in either the article or the references, and yet Web of Science, mega information source, reported this article is citing the phantom reference. So, it doesn't exist, people will continue to cite it. Maybe you should cite it Kaylee.

Kaylee

I've been sitting here thinking "have I cited this paper?" Luckily, all of my research is about rats, and mite genitals. So, I don't think I've had the opportunity. So, we've got phantom papers, we've got wild use of acronyms, and initialisms. We've got issues with readability. What do we do Jay? How do we overcome this? What do we need to do?

Jay

I think the main principle, if you want to be a good science communicator is over research. I use "over" sort of incorrectly, because I don't think it's possible to over research. The deeper you get into a subject, and the more references you seek, and then the more references from the references that you find, you will uncover these kinds of things where you'll find certain papers are written much more clearly than others that basically say the same thing, and so you rely on



them. If you come across a phantom article, I'm not sure how many there are out there, you'll detect that. So, you know, and even if you're really up on your scientific vocabulary, and you deal with acronyms easily, and you don't mind big polysyllabic words, researching in depth is still the most important thing. Here's why, like, Kaylee, if I asked you about rats, and Michael, if I asked you about fast radio bursts or something like that, you guys both know a lot about those subjects, and can talk about them to me, and it could be two minutes, five minutes, eight minutes, whatever, because you know them really well. I just picked radio bursts, but it could be anything galactic.

Michael

Well FRBs.

Jay

Yeah, thank you, they are FRBs that's the best part, I didn't sneak that one by you. You also will be comfortable in the fact that there are subjects you don't know to that kind of detail. Therefore, you can't just spontaneously talk for five, or seven, or eight, or nine minutes. You know, one of the first freelance gigs I had was on a national CBC radio program now extinct called Morningside. Peter Gzowski was famous for being the host, but there were other hosts, my gig was to go in on a Wednesday morning, do 10 minutes on any scientific topic I wanted. So, I would just tell them, I'm doing smallpox. Smallpox was just being eradicated in Somalia, and those were the last cases. So, I knew I was going to be on for 10 minutes, but I had no idea what the host was going to ask me. So, I basically prepared half an hour's worth of material, and then it didn't matter where the conversation went, because I could pick up that thread. I'm exaggerating, I couldn't always, but usually I could bring it back to what I wanted to say. That's what I term over researching, you prepare more material than you need. You know what, it's also good from another point of view. If I asked you honestly, Kaylee, tell me everything you know about rats, and then we're only able to use a third of it? Well, you know, in having over researched, you knew how to tell the story, you knew what the main parts of the story were, you knew what the subplots were, you would organize it, you'd be able to deliver the package. Everybody is more comfortable talking in an adult-to-adult conversation type of situation, about something they know, like the back of their hand. If you just read about it this afternoon, and you're not really sure where all the threads of the conversation go, you're not going to be as good.

Michael

We got some big audience questions coming at you, Jay. I have one final question that I want to ask you. So, one of the lessons that I remember you talking about at Beakerhead was not to take ourselves seriously, and not to be afraid to be silly, and have fun. Where does Jay Ingram find that joy, that silliness in science communication? Where does your passion lie in science communication?



Jay

Well, I think two ways for me and you know, other people have other ways, the books that I've been writing recently, the Science of Why series, have some things that really appeal to kids. I wouldn't say they're silly, exactly, but they're light hearted, let's put it that way. You know, it can't all be heavy. Science sort of carries with it a weight. That is part of the reason that people are anxious about it, and get put off, and don't want to engage with it, because they think it's all incredibly heavy, and quite often associated with bad news, climate change, air pollution, COVID, and so on. The other thing that I really have enjoyed over the last 10 years is giving talks with a band. The idea there, it's not so much silliness, but music injects an emotional colour to a science talk that quite often the science talk won't have in of itself. I think when it works well, it elevates the mood. You know, when you're communicating with somebody, and again, I come back to adult-to-adult conversation, if the mood isn't good, the conversation isn't good.

Michael

Well speaking of music, should we listen to a little music segue into audience questions?

Kaylee

What a hilarious segue. Yes, we'd let's go on to audience questions.

Michael

All right, if you want to get in on the audience questions, we post them on our social media @NerdNiteYVR, on Instagram, Facebook and Twitter. Our first one comes from Russ, "How do you define your audience? Generally knowledgeable or not? How do you cater to the entire spectrum?"

Jay

Well, audiences differ. You have to know to whom you're speaking or writing. I'll give you an example. I've given several talks on Alzheimer's disease, and I can say pretty categorically, that when people come to a talk on Alzheimer's, they have three questions in their minds: "Am I going to get it?", "What can I do to mitigate that risk that I'm going to get it?", and "If I do get it what then?" That really covers all of the potential questions, because there's really no treatments. But where the research is going, it deals with the genetics, which is what clouds most people's minds, they have a great aunt who got late onset Alzheimer's, they're afraid that's going to commit them to it, and of course, it's not. In the middle of that, what can I do to mitigate the risk, there's a whole host of things that you can monitor in your life, and fix. Each of them will lower your risk, and that ranges, everything from eating properly, exercising, maintaining social contact. If you have hearing loss, get hearing aids, etc., etc., there's many of them. You can reduce your risk, just your random risk of getting Alzheimer's, by about 40% by doing all those things. So that's an audience that I think I know pretty well. Other audiences are much more diverse, you know I never go in assuming people are knowledgeable. I think that people are intelligent, and curious, that's how we used to think of it at Quirks and Quarks. They don't know anything about this particular subject or very little, but they're curious to know more about it. So,



our guest has to do that job of connecting with what little they know, like with rats, you can usually guess that they know something about how big they are, and maybe where they live. You can take those connections you're sure of, don't assume any other connection, and then start to build out from that. So, audiences are always different. I would always say the more research you do about your audience, and boy, when I was in TV, it was exhaustive. At Discovery Channel, they created a persona called Discovery Dan. Through focus groups and questionnaires, and everything, they had amassed information about this ideal typical Discovery viewer. What kind of car he drove, how many kids he had? What kind of housing did he live in? What sort of job did he have? How much was his income? So that's smart, except that what happens over time, is that you tighten the focus on what you do on your show to suit that person, and that person doesn't represent all of your audience. So, you end up, to my mind, less and less creative.

Kaylee

Okay, we have a question from Farah, who asks, "What are your thoughts on the current landscape of science communication in Canada, and the gaps we should be mindful of?"

Jay

That is a gigantic question. So, you know, let me just refer back to part of the conversation we had earlier on. Efforts are being made, and I applaud that. Science Centres are getting more creative in how they present their information to the public. More scientists are active on social media, and some of them are really, really good. You guys both know, Dr. Sam Yammine who is incredibly active on Instagram. So that proliferation is all good. As we also discussed, there are many more initiatives to improve science communication across the board. So, all of that is good. I think that what I would like to see, to identify one gap that I think could be closed up a bit, I want to see more art infused into the science communication. Whether that's visual art, sculpture, music, poetry, spoken word, anything like that, and maybe not just "Okay, I'm going to write a bunch of science poems", but just infuse the science a little bit with a poetic sense. That may sound a bit vague, but you know, you mentioned Beakerhead earlier, when we started Beakerhead, it was really supposed to bring art, engineering and science together, and see what that mix would produce. It was a novel idea, and it worked really well. I would just like to see it become a little more diverse, not only in the presentation, but of course, in the people who are doing it

Michael

Call back to previous guest, Shawn Hercules with Science is a Drag, drag artists talking about their science, I would also love to see more of that as well.

Jay

Exactly, and you know why? Because then it normalizes it to the rest of society, it doesn't stand aside as this difficult to understand, pretentious, intellectual, elite sort of activity. People are going to listen more to what scientists say if they feel they're people like them.



Michael

Our final question comes from Natalie, who says "The pandemic situation has thrust us educators into online teaching, many of us against our will. But I've started to shift my perspective in to that of opportunity. You've been communicating science via radio, what advice do you have for educators who are navigating the situation, and trying to effectively communicate science, and engage learners online, amongst a sea of viral internet garbage and misinformation?"

Jay

Well, that's a tough question because I don't have to teach online, I've done some stuff online, but not anywhere near as much or as challenging as teachers are experiencing. I know that it's incredibly difficult. What I would do as a first step is to resist the temptation to throw a bunch of technology at it. You know, students are watching a screen, if you're lucky, you can't tell because they've turned their video off, they've muted their microphone, that actually is a huge issue. Right? No feedback whatsoever. I also know professors who engage with their classes very effectively on a personal level. They don't allow a distance to grow between them and the class. I think that's the first step, that you have to establish a comfortable respecting relationship between the teacher and the classroom, and vice versa. Then you can worry about introducing images, slides, text, whatever. I fully feel that when it comes to science anyway, and I'm stepping away from this online teaching question for a sec, to say that a talk with really great slides is a great talk, but a talk with average slides isn't. Most science talks that I've seen, I would say most, always have bad slides in them. The mere existence of the slides, tilts the attention of both the audience and the speaker. A more effective speaker is speaking right to you, it's adult-to-adult conversation. Have You ever had a conversation where you're holding up like flashcards to somebody to illustrate your point? You don't do that. While I admit that slides are sometimes essential, the design of them, the thought that goes into them is crucial. So, if I were forced into an online teaching situation, I would do my best to personalize it, to make it very clear the structure, like here's where we're going with this conversation, and then hope that as things ramped up, then you could start putting in slides or whatever that would enhance, music, who knows, that would enhance the lessons.

Michael

Well should we nerd out?

Kaylee

Yeah, let's nerd out.

Michael

All right, if you want to get on the nerd outs, once again you can hit us up on our social media @NerdNiteYVR. You can also email us Vancouver@nerdnite.com. Kim sent us her nerd out. She is nerding out about chess strategies and tactics. Jay, did you ever do a chess segment on Daily Planet?



Jay

No. We actually did some math segments and those were bad enough. You've all been watching the Queen's Gambit?

Kaylee

Obviously, I just finished it last night actually.

Jay

Yeah, so did we. Well, I mean, the thing that that program did for us was make us wish in a way that we could be as involved in the development of the play as experts are, and also the history of the game is fantastic. You know, in other professional sports, you don't hear about the history very much. It's all kind of about today. But throughout that series every episode, had references to lists, books, games. We never did that on TV.

Michael

Is that what you're nerding out about. Chess? Do you have something else you want to nerd out about?

Jay

Well octopuses.

Kaylee

Oh, you're taking my nerd out!?

Jay

Well I can do octopuses after you do it.

Kaylee

Okay, we can have a giant nerd out about octopuses. First of all, what's the plural of octopus? What do you think?

Jay

It is not octopi.

Kaylee

No, it's not.

Jay

It's either octopuses, or octopodes.

Kaylee

I feel very strongly about octopodes, deriving from the Greek. Anyway, that's neither here nor there.



Jay

Okay, so mine is a little bit esoteric, but octopuses have some unique genetic mechanisms. They're not completely unique, but they have much more of them than say we and other animals do. They're quite interesting, and it's suggested that they won't allow octopuses to evolve as quickly as other animals, but it will allow them to respond quickly to environmental change. So, you know what I mean, short term change, yes, long term development, no. Some scientists, and I'll tell you who they are in a sec, took this to mean that octopuses must have come from outer space. Because they're just so different from all the rest of the animals, and fish and birds that live on earth. So, they concocted a scenario, octopus eggs frozen on a meteorite, meteorite lands on Earth, the eggs survive, they develop into octopuses, and that's why we have them today. Now, if you just read the paper, you'd think, well, that's kind of weird, but if you looked at the list of authors, you would recognize many names, or at least I did. These are all people who have been beating the drum for decades, to say that life came from outer space. One of them Chandra Wickramasinghe, use to co-write with Fred Hoyle, who was a great astronomer in the 50s. He actually coined the term Big Bang, although he meant it to be a criticism. Fred Hoyle and Wickramasinghe got on this thing about how the flu, the pandemic 1918 flu, must have come from space, because it seemed to pop up independently in different parts of the world, and how could it transmit from human-to-human and do that. Fred Hoyle is dead, but Wickramasinghe is continuing this campaign, and many of his colleagues to prove that life came from outer space, and their latest exemplar was the octopus.

Kaylee

That's pretty great. My nerd out doesn't quite bring together octopuses in space, but I have been nerding out about a new article that just came out. Here's my example of not knowing all that much about it, but being very interested. So, there was a new paper from Giesen et al. in the journal Cell, which I think we've just learned is not that accessible. Is that correct? I must say, I did feel that reading the paper. Essentially, what the paper talks about is the ability of octopuses to taste with their arms. Now, apparently, we've known that for a while. I am not among the people who knew that, but I thought it was really interesting. This paper found that the suckers on the arms of octopuses have cells that are capable of taste, and those that are capable of touch. They talk about how those cells can detect a variety of chemicals, and create a complex taste map. There's a terrifying video of a little crab that is glued to a board, and you see the octopuses arm's reach in underneath a barrier, and touch the crab, and sense it, and know it is food, and not an inanimate object, and the crab doesn't fare well. So, I thought that was really interesting.

Jay

I think that's cool, because that would solve part of the COVID problem if we could taste with our arms. We could go to restaurants, and stay masked, and eat - well maybe we couldn't eat, but we could taste. Just stick your arm in the vat of wine, and say well, that's a lovely Chardonnay, and you'd never have to take your mask off.



Kaylee

Your whole arm. (laughs) Make it easier to drive after too actually. Wow it'll really solve a lot of problems.

Jay

Oh no, because the octopus cop would place pieces of paper on your arms and say, "Yeah, you've been drinking."

Kaylee

Like a little Plexiglas or something (laughs) Anyway, octopuses are cool, and maybe they came from outer space. I think that's the takeaway of this nerd out. What about you, Michael? Have you been nerding out about octopuses?

Michael

Yeah, so my nerd out is also about octopuses (laughs). Actually, mine is about contact tracers. So back in the summer, me and my friends decided to pick up Spikeball as our outdoor physical activity that we could do together. I use to laugh at people that played it because it's looks very silly, and it is very silly. It's a very silly game, but it's really easy to learn, and easy to pick up. For me, living alone this year has been super challenging. Even if I do have introvert tendencies, all of my work is very social, and I need physical activity. So, this is our thing, Spikeball. Now, we're recording this in the beginning of November, and this episode will likely be released in February. So, it's hard to say what this landscape is going to be like. Last week, my friend, that we played with, tested positive for COVID. So, what that means is that all of us that played were contacted by the same contact tracer, and interviewed us. I found that kind of interesting because we were put into a special category because they had no data on people playing Spikeball, and if that was prone to transmission. So, I think this is very interesting, even if it is a little disconcerting. I have been a little bit on edge this week, because we're all having this collective moment, when we talk to the contact tracer, we're all talking to each other on chat about our symptoms, none of us are showing any symptoms, so that's good. I seem to be talking lightly about this, it is a bit stressful. It's also interesting knowing that right now, we're in the middle of a really interesting science story, like a giant science experiment. I think that there's something about that, about thinking about that perspective that everything we do on this planet is a big science experiment in the universe, and all of the actions are like data points. It's just that right now, the stakes seem super high for us, because they're affecting our daily lives. There are other things that we are doing, of course, like carbon emissions, etc., that are affecting this planet. I think if we start thinking more about this science experiment that we're in, I think that that may have some lasting change. That's me giving positive optimism that I know according to previous guest Dr. Travis Hodges, as we get older, especially older males, we are prone to be pessimistic, here's me being optimistic. So, shout out to all of the contact tracers, shout out to all of the doctors who work in the vaccine. Let's wear a mask. Let's be socially distant, and be hopeful for the future. Jay, thank you so much for joining us on Nerdin' About. You have written many books, you are doing lots of promotion for them. Where can people get these books? Where can people learn more about what you're up to?



Jay

Well, you know, I think you can order them online, and they're going to be in Chapters/Indigo, and probably independent bookstores. However many of those are still here after COVID, and even places like Costco. Anyway, thanks for letting me nerd out with you guys.

Kaylee

Yeah, that was really delightful. Thank you for spending your time with us, and thank you, everybody for listening. If you want to hear more from us, you can follow us on our socials @NerdNiteYVR on Twitter, Instagram and Facebook. We'll be back in a couple weeks, and until we meet again, QUAOTUI. Quit using all of those useless initialisms.