

## Getting Curious with Jonathan Van Ness & Professor Anna Feigenbaum

**JVN** [00:00:00] Welcome to Getting Curious. I'm Jonathan Van Ness and every week I sit down for a gorgeous conversation with a brilliant expert to learn all about something that makes me curious. On today's episode, I'm joined by Anna Feigenbaum, where I ask her: What's the deal with tear gas? Welcome to Getting Curious, I'm Jonathan Van Ness, I am so excited for this week's episode. Welcome to the show Anna Feigenbaum, who is an associate professor of communication and digital media at Bournemouth University in the south west of England. She is the author of Tear Gas: From the Battlefields of World War One to The Streets of Today, published by Verso. Welcome, Anna, how are you?

**ANNA FEIGENBAUM** [00:00:43] I'm good. How are you? Thank you for having me.

**JVN** [00:00:46] Do you watch figure skating at all? Are you, like, familiar with figure skating terms?

**ANNA FEIGENBAUM** [00:00:50] Ehh, some of them.

**JVN** [00:00:53] Well, there's this thing that we call a double footed landing. Like, you don't want to double foot your landing. You want, like, a nice, clean single foot landing. So did I single foot landing your last name and the name of your university?

**ANNA FEIGENBAUM** [00:01:03] You did, but I just got promoted. So it's actually Professor Anna Feigenbaum now.

**JVN** [00:01:09] Yes! Professor! Yes, you better, Professor Anna Feigenbaum! Yes. I have not had a correction more exciting than that all day. I love that for you. Congratulations. Yes. How does it feel to, like, just be a full blown professor now?

**ANNA FEIGENBAUM** [00:01:26] It feels good. It's like one of those things where, like, I wasn't in a rush to get there and I was like, "It won't be any different." And then it was, like, immediately, totally different. And it felt like the weight of lots of expectations got lifted off of me.

**JVN** [00:01:37] OK, love that. So hard, right, you guys, we are diving into our subject matter now. So last year, 2020, lots of protests. This is where the hint of curiosity first was born. I'm like, "What is this tear gas? Where does it come from? Is it, is it literally gas? What is this shit?"

**ANNA FEIGENBAUM** [00:01:57] Okay, so there's, like, a few different types of tear gas. We call it tear gas because one of the main things it does is it makes the eyes water. There's, kind of, two main strands of it. One are thought of as the irritants and one are the inflammatories. In practice, they both hurt, and they both do almost exactly the same bad things to your body. But in terms of the compositions, the ones that we normally have, I'm just going to give you the abbreviations because the real names are, like, super long, and I would have to read them awkwardly off the screen. So the abbreviations are CN and CS, and those are the irritant ones. And then you have the inflammatory ones, which are normally called pepper sprays, and those are OC or something called PAVA, which is a synthetic rather than naturally derived.

You could spend a, really, an hour that would probably be quite boring, like, just talking about the different types of tear gas. But at the end of the day, neither are gases. They are actually a liquid, which is quite interesting, and that's why they can be fired on people in so many different ways. So whether it's, like, through a hose or through, you know, a gun or inside of a kind of capsule that looks like a giant bullet. So the reason that there's all of this variety is actually because this is kind of a liquid or a powder, like, there's all these different ways that you can disperse or dispense it.

**JVN** [00:03:13] Whoa. That's a lot. So the stuff that I saw in the protests last year, those were, like, in canisters.

**ANNA FEIGENBAUM** [00:03:20] Do you remember the big debate of, like, "We didn't tear gas them, we pepper sprayed them with these, like, pepper balls." So that's, like, the same kind of things that you would get if you went paintballing with your friends, but they're filled instead with toxic chemicals from a paintball manufacturing company that was like, "Oh, here's a new nifty idea of what we can do with our paintball things." And that company sells, like, all different kinds of these chemicals, like, it can be, like, "Have some CS with a bit of OC in it."

**JVN** [00:03:47] Oh, so the reason why that's major is because if it's got CS with a little bit of OC, that's like a little bit of the irritant and a little bit of the inflammatory. They're, like, "We can give you a little bit of a mixed bag of all the different things."

**ANNA FEIGENBAUM** [00:03:57] Yeah, yeah, yeah. And it's, like, all bespoke for the buyer. So, like, the orderer can be, like, "Oh, I would like a little bit of this, a little bit of that." But it also makes it really kind of silly when the news gets into this like, "Oh, it was this and not that," like, at the end of the day, like, they're all toxic chemicals that are being fired at people.

**JVN** [00:04:12] And so the consistency, like, its literal makeup, you said, is a liquid. So you can just have a tank of it and fire it through a hose?

**ANNA FEIGENBAUM** [00:04:20] Yes, yes. A thing you see a lot in the U.S. is those, like, backpacks that look like they have fire extinguishers on them and then they have, like, a hose spray. Or if you remember back to, like, the UC Davis, like, the cop that became a meme because he just, like, group pepper sprayed someone in a row. Yeah. So, like, that's one of those, like, big spray tanks that, like, can fire at lots of people at once. So those things are extra dangerous.

**JVN** [00:04:45] So those, like, canister ones that emit what looks like gas. Is there, like, some sort of, like, white gas that comes out of some of those canisters?

**ANNA FEIGENBAUM** [00:04:52] Yeah. So there's, like, a smoke that comes out and you can actually choose, like, your color, like, more bespoke product marketing, you can choose like hair color smoke. Sometimes it is a mix, like, sometimes a smoke grenade will be thrown and then an irritant will be thrown out. And it depends. But yeah, a lot of times they're mixed into the same canister. And that, part of the reason for that, that smoke is to, is to hide or to cover what is happening.

**JVN** [00:05:20] Oh, so you can do, like, a smoke one to be, like, "Maybe they'll think that this is a pepper spray." So it's just, like, very, like camouflage, like, tactic. Yeah, so well, I have never been pepper sprayed, maced, tear gassed, like, I've not been one of the people who have had this happen to them. So you're in a group of people, someone disperses this. What does it smell like? What is it, what's the, what's the, what do people say that it's like?

**ANNA FEIGENBAUM** [00:05:48] I mean, people usually describe it as feeling like you're going to die, you're going to suffocate. It is intentionally designed to cause so much fear and perceived harm that the, that you just want to escape or to get away from what they used to actually call "the site of torment." So the old marketing, and we might get into this later. But like when you look at the old school marketing, it's, like, none of this, like, "less lethal" humanitarian rhetoric that we have today. It's just, like, "Run from the irresistible blast of screaming and tormenting poison," you know? And so that is, I think, much closer to the sensory experience of what it is like to, to receive terrorizing. It causes choking. It causes, so that this kind of crime thing is, like, the least of it. It's, like, your eyes water. But then you're choking, your nose is running. For some people, it gives them really bad intestinal problems. They're looking now at connections between various kinds of, like, menstruation problems and being tear gassed. And then it also, especially in a crowd,

causes, like, stampeding and running, which then creates more psychological as well as physical kind of sense of, of torment and worry.

**JVN** [00:07:05] If a government is using this shit to tear gas you in the first place, like, they're used, they're the ones disseminating it. How many studies are we really going to have about what it does to people? Cause, like, you know, I feel like there's like there are, like, long-term health risks associated with tear gas that we don't hear about. What are some of the long term health risks and side effects of being exposed to tear gas?

**ANNA FEIGENBAUM** [00:07:30] Yeah. So you're, you're completely right that most of the big studies and the access to money to even fund these big studies is held by the military and government. So, we, the only times that, that there's been a kind of safety clearance for tear gas in the long term, it's come from one of these studies, and they're also quite old now, these studies. Like, we're talking about kind of, like, 50s, 60s, 70s, when the bulk of this research was done. And also a lot of the research that's been done is done on animals in the ways that those studies get translated to the human body is, like, super questionable. Like, I've spent a lot of time in archives reading about killing animals with tear gasses, as you do, and what that goes, like, what goes into the press release of like, how the study has, like, "total clearance for humans." But then you're actually looking at the study and you're, like, "What about all these monkeys that died?"

**JVN** [00:08:29] So are you saying that in, like, the 50s, 60s, and 70s, when a lot of these studies were being done, tear gas was actually used. And then it actually killed the animals that it was being tested on.

**ANNA FEIGENBAUM** [00:08:40] Yeah. So there are animals that-, so, in large doses. So the way that they call tear gas, it's all based on this kind of dosage. I know I realize I'm, like, sidetracking from the long term health effects. But it's kind of like-

**JVN** [00:08:51] No, it's important.

**ANNA FEIGENBAUM** [00:08:51] -In order to understand. So basically in the same way that, like, with a bottle, I always forget that, like, the British names for these things, it's different than the American. So with, like, a bottle of Advil, if you have, like, a hundred pills, like, that's too much of a dose and could be dangerous. Whereas, like, a two, two pills a sudden, if you had four or five, it would probably be OK, but not advised. So they use this kind of drug regulation or scale to, to understand whether or not tear gasses are lethal. So they study it by giving really huge amounts of doses and then see what happens, like, "Do you develop this? Do you die? Do you get these kind of..." So that's, like, the bulk of the studies that have been done. And that's where I would say we have a lot of

questionable science that is military run and not checked by any kind of individual body and also outdated science.

So science that was clinical experiments that were done decades ago that often haven't been updated but are still cited as if they are contemporary. The only way to really study the long term effects is through something that's more epidemiological, so long term, over the course of time, with the same people, which is a really hard, hard kind of study to do. And whether you're the government or you're, you know, a group of scientists at the university, but it's incredibly difficult to get research money to study military weapons, like, not surprisingly. So most of the data that we have, which is very little that's on the long term, is housed as well by, by the military.

There are some interesting studies on people who have worked in factories that produce tear gassed and, like, have seen a lot of long term effects on people there. And so things that you would imagine that relate to the short term respiratory or those longer term respiratory. So this is all sort of, like, needs further investigation. But there's links to things like asthmatic conditions. We know it's really dangerous for people with epilepsy. We know it's really harmful for pregnancy. We know that, that there are basically any, any kind of preexisting respiratory condition that you have, like, you do not want to be tear gassed. And there have been studies into whether or not it's carcinogenic, and I would say that goes into kind of, like, probably needs more research, sketchy science of the past category when I've looked at those studies.

**JVN** [00:11:19] So does that mean that, like, some of these, like, widely accepted medical, like, spectrums of, like, "Oh, tear gas is, like, air quotes 'safe' in these doses." If you're tear gassing, like, you know, just a massive amount of people and you're getting this information from, like, a military thing that was in the 50s, 60s, 70s or whatever. If you're someone who has if you're a survivor of you're a cancer survivor, if you have asthma, if you have a compromised immune system, perhaps these doses that are considered normal for some people actually can be, like, really, truly dangerous for certain people to be exposed to it in the long term.

**ANNA FEIGENBAUM** [00:11:53] Exactly, exactly. And in the short term, and that is something that is openly admitted in something called this Himsworth Report from, from Northern Ireland in the late 70s. That's kind of the-, continues to be the standard that's turned to today. And, and that was openly discussed in the findings for that. But you never see that kind of cited or quoted because there's this kind of able-bodied assumption. And most of the military studies are done on men in the military. So people in their physical prime, in their young 20s. So a lot of the data that we have doesn't include or has not

studied any kind of body other than that very normative kind of white male in good shape and in his young 20s.

**JVN** [00:12:34] What do we know about, like anyone who's lost their lives or like their life has been forever changed due to tear gas exposure?

**ANNA FEIGENBAUM** [00:12:41] Yeah. So there are hundreds of incidences of deaths over the course of tear gas. The data is completely scattered because there's no systematic way of collecting it, and there's no duty to report for police officers when they fire less lethal weapons. Yeah.

**JVN** [00:12:57] Wow, let's fucking say those three sentences again. If that did not send shivers up your spine, you are not listening to this podcast or, like, reading it through the transcript well enough. Let's say that one more time. So in the course of history, like, modern history, I'm assuming we have hundreds of cases of, like, assumed tear gassed deaths or, like, tear gas deaths.

**ANNA FEIGENBAUM** [00:13:23] Um, I would say we have tear gas deaths. So then there, then there's dozens more, hundreds more of assumed ones. I mean, tear gas leading to her being part of a situation that becomes deadly or with a long term or life or any kind of illness is going to be even even larger of a number.

**JVN** [00:13:41] Wow. So literally hundreds of deaths directly directly contributed to tear gas exposure and law enforcement, like, literally doesn't have a duty to report. Is that just, like, a U.S. thing or is that, like, literally everywhere?

**ANNA FEIGENBAUM** [00:13:53] There is, there tends to not be duties to report for "less lethal" weaponry. And part of that, and you know, in their explanation, is that these are dispersal weapons. So, like, I fire, it, it hits 100, 200, 1000 people in the crowd. How? How would we track back to my canister? The amount of gas that that one person received in the crowd, right, so that it's an incredibly difficult and challenging thing to monitor. So, like, a bullet has a serial number, it matches to the gun. You find the bullet, you know, the bullet hit, you can do that tracking. So it's political, if you're not tracking a bullet. With tear gas, it's complicated because it's political, but it's also a kind of technical challenge. So you would have to rethink the entire way that, and this is what people are trying to do right now, like, rethink the entire way that this is regulated and monitored and used. But we know that tear gas is a cause for death in cases where there's suffocation in enclosed spaces.

**JVN** [00:14:56] I was going to ask you. So what would like? What would they? Well, like what would a medical examiner or like a doctor rule the cause of death if it was exposure to tear gas, like, suffocation or organ failure?

**ANNA FEIGENBAUM** [00:15:08] Yeah, exactly. That's a problem. So it's, like, it's, like, it's an and it, it's still, like, anyone who knows anything about your house would then read that report and know that tear gas was the cause of death. But in the way that we record death, it would still be complicated and it would still be seen as part of, like, a chain because it could still be that a different body wouldn't have died. Right? And in some cases, that's just not true. Like, there is some terrible incidences where there's one where, like, the back of a truck got tear gassed, put into it. And so everybody that was transporting prisoners and everybody who was inside died. That was in Egypt. Everybody would've died.

So like in that kind of case, probably anybody who was in that truck would have died. But there are these other incidences, especially when they happen in prisons or in detention centers or places where people already are stripped of a lot of rights and voice where, you know, they're only people that were witnesses or other guards and people that work in the place and then someone dies from exposure and then they tend to blame, you know, "Oh, well, this person had this preexisting condition. And that's why." You know, and we see it reported in some of the same way that we see COVID deaths reported, right? Respiratory death is a very complicated thing in the way that we record death to, to know the cause of. And so, there ends up being a lot of this language around, like, bodies that aren't fit enough to to take it.

**JVN** [00:16:26] Wow. This is one of those episodes where I thought I was going to have to pretend like I didn't know certain things but then I, but then I actually really didn't know certain things and then it actually does get so, wow, queen. Thank God. Well, sometimes I just have to make jokes about things that I didn't make jokes, I would just be too sad, and, so I guess it just sort of goes back to like the Benefit brow brush, like, your brows looks so amazing and it's just nice to like, have such devastating information delivered by someone whose brow game is unparalleled. OK? Like, it would be worse if, like, your brows didn't look so fucking good. Like, your brows. Like amazing, OK?

**ANNA FEIGENBAUM** [00:17:02] Thank you. So, yeah, I wear pink a lot when I, like, get interviewed, like when it's on video because I'm, like, "I'm going to deliver this really heartbreaking news to you. But look, I'm wearing, like, a pink shirt and some nice earrings." [CROSSTALK] And so it's not quite as bad. Like, maybe, you know, but it is really bad. It's really bad. But we also want to be able to listen to it and to think about it and then to, like, when we see it on the news or, like, our friend dismisses that to, like, be able

to be, like, "Knowledge. No, that's not the whole story.

**JVN** [00:17:37] It sounds like: widespread issue, like a really worldwide, like, there's tear gas like, you know, Egypt, US, like, all over, probably, like, anywhere where there's, like, law enforcement, which I think is like everywhere, right? But in order for us to really understand now, I feel like we probably need to go back to its origins, like the history of tear gas. So what is the origin story? Like, who developed it? Where and when? For what purpose? If you went to play a game, I could try to test my history knowledge of what I'm pretty sure I remember from seventh grade?

**ANNA FEIGENBAUM** [00:18:12] OK. Shall we start with who first deployed it in what war?

**JVN** [00:18:19] Someone in World War One.

**ANNA FEIGENBAUM** [00:18:20] Tear gas was actually started by the French, were the first to use it in the war.

**JVN** [00:18:26] The French, who knew?

**ANNA FEIGENBAUM** [00:18:28] Yeah. So the French, and apparently the French. And if, if you happen to have any, like, French-speaking archivists that are your listeners, I would love for someone to go to the French police archives and find out what is true about this. But apparently, the French police were, like, having a little dabble in the tear gas in the early 1900s because they got really tired of all of their protesters hiding behind barricades that they couldn't get them out of. And so this is what we think was going on is that the police were like having a little test, a little play, and then World War One started and they were like, "Oh, maybe this would be useful to get people out of trenches," because trench warfare meant that people were, you know, hiding from each other to not die. And then in order to make advancements more, you had to kill the other side, so you had to get people out of the trenches. And so they used tear gas, at least this was in theory, to get people out of the trenches so that they could either fire at them or put the worst gases on them. It didn't. The early versions didn't work very well, and apparently that what the phenomenon that's called "blowback." So when you get it back in your face was really common. And but then after the war ended, it became refined and made into a commercial product.

**JVN** [00:19:40] So, let me get this straight: the origin story of tear gas was to disperse protesters, and then it was to get soldiers out of barricades so that then they could murder them with other gases, where they were already on a battlefield, like, exposed to really



deadly stuff anyway. But the tear gas was so bad that it would even get them out of those hiding spots to kill them from other stuff.

**ANNA FEIGENBAUM** [00:20:10] Yeah, and it would cause that kind of psychological trauma and disorientation, which is really useful if you're trying to harm people, right? And this is where I think we really have to think about what it means to take a military weapon and then bring it on, on to the streets. And you know, there's, I don't know how much you want to get into the whole details of the crazy man who was, like, in charge of doing that in the US.

**JVN** [00:20:33] Oh, fuck yeah, I do. I want to get, I want to get, I want to go. Yes. And so I'm guessing so that's what our one. Then afterwards, is that when crazy, fucking US man, when who is that guy? What's his name?

**ANNA FEIGENBAUM** [00:20:45] His name is Amos Fries, though some people say Amos "Freeze"? Unknown again. Any listeners with expertise in surnames, last names, last names. I keep doing this, this British-American thing. Anyway, so general, they must. Fries is a veteran of the war. He's very decorated. He did very well in his military academy. He was very, did very well in the military. And when he got out, he was, kind of, started rallying some other people, including lawyers and publicists. And he really wanted to kind of maintain the chemical warfare service. So, like, the other kind of chemistry that was going into these military weapons. So in the US, 10 percent of all chemists were enlisted into the First World War. So just to get a sense of the scale of the amount of chemistry that was in the war. So, and, this is true for other countries, it's true for Germany, and this is true for France as well. So there's like all this chemical investment that's been put in.

So after the war, people were like, "I don't want to lose my job, my innovation." I'm sure money was involved. So General Amos Fried becomes the head of the chemical warfare service, and him and his buddies, the publicists, and the lawyers, start basically, like, a massive lobbying campaign to get this not just tear gas, but tear gas largely among it, to become what they call "peacetime weapons." So "peacetime goods." And the, this is, like, also, like, the early 1920s. So this is, like, the birth of PR more broadly. So we're starting to see lots of, like, really fancy advertising and doing these kinds of big, extravagant demos and things for products.

And so he basically used, like, cutting-edge PR techniques to market tear gas. So he would, like, call up a police department and be like, "We have this great new stuff. We would love to show it to you." And they would bring tear gas to, like, 200 police officers in a field, and they would get journalists to come and photograph it and watch it. And they would do, like, a massive demonstration. You know, I sometimes call it, like, a "fashion

week-style" kind of tactics that they would use, like, "Come see our new collection," and then they would they would fire the police and then they would have all these quotes in the newspapers that were, like, "Oh my God, the stuff is so awful, I can't wait to use it against protesters."

**JVN** [00:23:04] So when you first started describing this, I wrote down militarization of the police force question mark. So was this one of the first times that we see in US history of taking wartime stuff and then seeing, like, "Oh, how can we repurpose this for, like, domestic use when we're not at war?"

**ANNA FEIGENBAUM** [00:23:22] I'd say it's, like, part of the modern move to do that because with the modernization of war happens at this time, with the end of the 1800s and the start of the 1900s, with industrialization and the rise of chemistry, in general. So there's I'm sure you can find examples of the militarization of police, like, way going way, way back to like the beginning of, of policing. But I think what's important about that period is that there is this whole, like, rhetoric of, like, "science as a civilizing force" that's happening. And so that enables some of these arguments around these kinds of, like, modern weapons that are, like, better than the old, you know, bat and like one of the ads was like, "Who needs a bow and arrow when you have tear gas?" I don't know what police department was using bows and arrows, but like this, there was this kind of modern science rhetoric that was used for this shift. And I think the other thing that I have to say about that is that often technologies go back and forth between the police and the military. So this is, tear gas is actually a police technology that becomes a war technology that becomes a police technology.

**JVN** [00:24:31] Yes, because it was the French police. Yeah, the French police. Then they gave it to the French military. Then it goes back to the police when the war is over.

**ANNA FEIGENBAUM** [00:24:39] Yeah, like, without the money and the scientific power of the military, a lot of these kinds of smaller scale developments or ideas wouldn't be possible. So I think, like, the big thing is still the militarization.

**JVN** [00:24:52] The press are coming to these fields in the US, in the twenties and thirties and seeing this tear gas, how it's so scary or so powerful. "This is, like, really fierce because now we can, like, disperse unwanted people." Well, how is this rationale received? Like, was anyone like, "I don't know about that," or like what is a more I mean, or is the real story behind that just it like these chemists and these industries wanted to? They saw an opening to make money. So they were like, "Let's create an industry out of this."

**ANNA FEIGENBAUM** [00:25:21] Yeah, I think a lot of it is profit motivated. I mean, you had kind of veteran buddies of the General Amos Fries, from the war, who were the founders of the very first American tear gas companies. And they started their products with donated samples from the military that they were, like, testing at the commercial facilities. But then they use that to develop the products. So they created a demand for it. They went to these police departments that were like, "Hey, we have the shiny new product, you need this." And then they produced it through companies that they were tied to. Right. So all of the money is coming right back into that same system. And that is really, like, basic, like, when you when you look at the history of it is just, like, Capitalism 101, like, it's just this really basic kind of roadmap to how you make money with a new product

**JVN** [00:26:13] Are those original American tear gas companies still in existence today?

**ANNA FEIGENBAUM** [00:26:18] So some of them have, like, they've morphed into other companies and, like, they've been bought by other companies. But yeah, so we still have. You can, and you actually still sometimes see canisters from Fed Lab, Federal Laboratories, which is one of these early ones, but there's very few. So, tear gas is often a family business if it's not owned by the military. And so often these companies have been in some form of another like around since the beginning of time. Other times, it's, like, historical weapons companies that then, like, got into the tear gas market

**JVN** [00:26:54] Are any of these hoes, like, fucking, like, goddamn Whole Foods or something or, like, yeah, or, like, are we all unwittingly going to some place that's also owned by Fed Lab? Is there anyone who need a fucking boycott because we shouldn't be helping people that are making goddamn tear gas!

**ANNA FEIGENBAUM** [00:27:12] Yeah. So there's been a lot of looking into some of these companies, and the one that got the most press coverage, especially of late, is a guy named Warren Kandors, because he also sat on the board of the Whitney Museum of Art. And he owns all kinds of things, including his own, including some climbing equipment, which is another boycott that we can get around it. But a lot of those different kinds of investors in this, and a lot of times they're like, it's like that really messy capitalism where it's, like, "And then this holding company, which owns like 30 subsidiaries that you can't trace, is also..." It is a lot of dirty money in it. There's a lot of relationships between, you know, police departments and these kinds of weapons producers.

**JVN** [00:28:00] So I guess the reason why I point that out is, is that, like, that, I mean, I guess anything is possible, but you would imagine it that would take a while to track and unwind because these relationships have gone back for, like, a literal hundred years now,

where this supply chain and the demand, and where someone's getting richer, you know, so people don't give up their money without a fight, is the point.

**ANNA FEIGENBAUM** [00:28:24] No. And the connections, like, the only reason that I was able to tease out some of these connections from the 20s and 30s is because I literally sat in archives for hours reading and handwritten letters that were written back and forth between these people and then, like, cross-checking that with various other archival documents and then doing all that kind of, like, biographical dig in to, like, who these people were included and having to go into their personal archives like, you know, and getting some librarian somewhere to like, send me files that I'm, like... So today, some of that's digital and it's a little bit easier to do. But if you even define these kinds of connections today requires deep, deep investigation and lots of things that are, that are hidden, you know, lots of Freedom Of Information requests. People want to hide their trails of money, right?

**JVN** [00:29:13] So do you think there's anything else that we missed about, like, a more full-bodied explanation of how tear gas got from French police to battlefields back to police being so widespread and ultimately to protests?

**ANNA FEIGENBAUM** [00:29:25] Yeah. So, that, the kind of General Fries chemical warfare service is kind of the American side of the story. But of course, America is a big empire and it likes to export its tactics as well as its products. And so the other, I think really important piece of the story is that tear gas was being used, right, in the new world, but it was also being used as parts of the colonization efforts of the older empires. So we see, like, the French tear gasses being used in French colonies and then British tear gas being used in the British colonies. And so the other story that I kind of traced in the archives was how-, so, Britain was a lot slower to accept the use of tear gas. And so why was Britain hesitant? And then what eventually made them decide that it was important for helping them to maintain colonial rule?

And so that takes you through the kind of story of, like, the rise of independence movements in some of their African colonies and India and the way that there are these negotiations going back and forth where they were, like, "Oh, in the U.S. and in South Africa, like they're doing a great job with this tear gas stuff, like, why aren't we using tear gas? We are having all these uprisings that we need to put down. We can't just shoot people because that looks bad. So like, what, why can't we get in on this tear gas?" And so I think that part of the story is also really important because when you think, like, "OK, who is tear gas used against?" It's protesters and people fighting, you know, for their independence from colonial rule. And so the interests usually in using tear gas are deeply tied also to that kind of government and financial power.

**JVN** [00:31:11] Huh. In your professional opinion, how fucked are we? Like, are we super fucked? Mildly fucked? Will we ever get, like, tear gas un-inextricably tied to, like, all like this fucking law enforcement? Is there anyone else who can suss out who makes it so that we can, like, boycott them? Because like, whatever accidentally, like, I don't know, like, some really cute shoe company that we like is also making tear gas or something?

**ANNA FEIGENBAUM** [00:31:42] Yeah. So you can definitely try to trace any of these companies and, like, what else they're, they're linked to. So their other major suppliers in the U.S., there's something called Saber Red, which is more for pepper spray, then there is Combined Systems Inc. That's, like, the other really big one. And then, of course, Warren Kanders' Safari Lands. Warren Kanders keeps saying that he's not going to be part of Safari Land anymore, but apparently there's been little movement on that. So it's questionable whether that's, like, just a PR stunt or whether that's, he's really leaving. There's a really big company in Brazil called Condor Non-lethal Technologies that does a lot of the exports to South America, where, where there's a lot of really horrendous uses of tear gas. And then there's a Chinese company that's run by the Chinese government, Norinco. And then there are some, like big companies in France that use their own kind of versions of weapons that are also really dangerous. And I think also importantly, like, all of these tear gas suppliers, almost all of these tear gas suppliers, are also make rubber bullets and other kinds of projectiles that are also really dangerous. So it's not, it's not like it's just tear gas. It's, like, all of these technologies that are used primarily against protesters are made by these same companies.

**JVN** [00:33:07] And is it law enforcement who is the primary purchaser of these?

**ANNA FEIGENBAUM** [00:33:12] Yeah, you, you have some supply that goes to them to military because in certain kinds of peacekeeping kind of operations, there's, like, "less lethals" use. But that's really fuzzy. And that, like, the details about it would be, like, a whole nother show. But the main main purchaser is our police and prisons are like another smaller, less of it. But yeah, and a lot of it is subject to, like, export regulation and like, there's some restrictions on trade, but for domestic purchasing, it's very light touch, the way the regulation is. And even in the international, there, it's just not that well regulated as a product. Sometimes also like if you're ordering, say, the chemical but not the actual, like, weapon, like, the device, then that gets listed as a different kind of, like, export-import, because it's a chemical and not not the whole weapons system. So there's, like, all of these ways around the kind of regulation that you would need if you were selling missiles, right? So it, it's, it falls in this kind of gray zone. Sometimes these, these products are even listed under trade categories for things like the same things as, like, computer equipment.

**JVN** [00:34:29] When you're thinking about, like, "non-lethal," like, we saw so many injuries last year and I'm sure this year, but especially last year of rubber bullets blinding folks, you know, causing permanent, long-term damage to people, also with tear gas. I think another thing that's just coming up for me to really drive through to folks is that if one of these companies, let's say, the guy on the fuckin' factory floor that day, that, like, is measuring the amount that gets put into each little canister. Maybe he had diarrhea. Maybe he was, like, running to the fucking bathroom every 20 minutes. So if one of these companies creates, like, a day or two's worth of tear gas, it's, like, way outside of the limit that should make it, like, "non-lethal" or whatever. And then those get disseminated to police. Then police use them, they deploy it and folks end up getting exposed to it and have worse damage or potentially, like, or, you know, killed, whatever. There's no reporting for this because the tear gas is, like, so widespread as you were saying, like, you can't, if you're, if you use it on two thousand people at a protest or five hundred people at a protest, there's nothing to really regulate all the time that all of this stuff is like, in fact, safe. So really, that whole idea that it's non-lethal, like, isn't really, fully true. Or do you think, am I saying that right, or no?

**ANNA FEIGENBAUM** [00:35:44] Yeah, I think, like, the, like, I don't know how much of, of the of the issues we have would be, like, manufacturing issues. I think the way that excessive use happens is either because more canisters are fired than should be within, like, "safe perimeter." So, like, if the "safety measure" is based on one canister per 500 people and you fire 50 canisters at them in five minutes, which is the kind of stuff we see happen, you are all of a sudden going in from what would be considered a safe dose, which all with all those other problems that still come with the idea of a safe dose to, like, a definitely excessive dose, like, if you're, like, supposed to give you two pills, and I shove a whole bottle of pills down your mouth like that is not safe.

**JVN** [00:36:32] So it's user error. And that's the sort of thing that's happening so often. But the thing that rings true with that, to the first analogy, is that, like, if they, if the police fire 50 canisters and the protesters can't prove that there was 50 day, the police, like, "What, show me where the 50 were, we fired two. Bye!" There's just not a lot of transparency for excessive force.

**ANNA FEIGENBAUM** [00:36:51] Yeah, so there's no, and that, that has to do with, again, like, that idea that they don't really, like, have to like, record or calculate, or report back on, like, the number of them used. And then we don't have any and it's, like, tracing system like we do for other weapons. The other thing that happens is especially in these, when again, like, because you can order this stuff, like, just in chemical vats and then you can, like, fill up your own weapons. So with, like, the hoses and the sprays and all this, like, the

amount that's been sprayed or used or put into the device. So whether that's, like, not necessarily, that's not necessarily happening on the manufacturing floor, but it could be happening in the police department. You know, somewhere else where someone doesn't necessarily know or care about the safety protocol and how much they should be using. So that's the other way that we end up with, like, really strong or too potent uses.

You also have things like expired canisters being used; canisters where, like, the origin of them is a bit questionable. So just a general lack of regulation will lead to these kinds of things. And then the other thing that we haven't talked about that the rubber bullets when we think of is, like, the other way that people get really injured is when they get hit with the actual like shells or casings of the of the canisters or the grenades that these are fired in, in which case that's kind of, like, being hit with a rubber bullet. Yeah, it's coming out of the same gun that you would fire, like, a rubber bullet out of, which also shouldn't be called a rubber bullet because they're usually, like, metal inside with, like, a very light rubber coating on the outside.

**JVN** [00:38:23] So who sets the standards for how tear gas is meant to be used in, like, a just, in a law enforcement capacity?

**ANNA FEIGENBAUM** [00:38:30] So historically, a lot of the use guidance, like, riot control manuals, come from the military. They were also written, like, originally in the kind of sort of post-World War Two and then a little bit later kind of moving into the sort of '68 uprising time was always a time for a lot of rethinking riot control. And so literally military tactics being translated into domestic police use in the same way that the weapons were transferred back and forth. And sometimes police will have their own kind of protocols. If you look at them, they look very similar to what's derived from this kind of military manuals for domestic situations. And then sometimes the weapons manufacturers also run trainings, and have their own training program. There are many problems with that, as you can imagine.

So. I mean, this is just, like, an anecdote, but for example, like, the safety protocol says that you should never fire, like, a canister, whatever is in it, whether it's tear gas or bullets, at someone's, like, chest area or, like, at their head, like, those are places to avoid. And when one of the other things I did for this project was go to arms fairs, and on the marketing stand for one of these major suppliers was a video of them literally shooting protesters in all of the places that their own safety protocol will say is not, you're not supposed to do. And it's, like, "OK, well, if you're showing training videos of things that you know are unsafe and that's, like, your training material and you're advertising this openly, like there's clearly a lack of regulation and oversight in this transfer of knowledge that's supposed to like, keep people safe."

**JVN** [00:40:23] And we saw tons of injuries from these “non-lethal weapons” at protests all over the place last year. But, do, is there any, like, times with tear gas, specifically in the U.S. where we see, like, a police department went completely against safety guidelines and people got really sick or lost their lives? Or there was, like, a huge stampede issue, like, was there anything, like, you know, like, the riot of XYZ, where tear gas was used and it was, like, a particularly brutal use?

**ANNA FEIGENBAUM** [00:40:56] Yeah, I mean, the, the, in the, in the 2020 protests, like, there's that expose of, like, a hundred different locations in which excessive force was used with, with these kinds of weapons. So one example that sticks out in my mind is when I was used on on a highway, I think it was in Philadelphia. And they, so the police fired a bunch of tear gas. Some people that were literally in an enclosed space, like, it was a giant, like, hill up to a wall and there was no way to get out of it. And that is completely against protocol. Like, again, if the, if that department owns a safety training guideline, like, that is definitely outlawed in the safety training. So any time that you're in a confined space, you're going to make the use of tear gas a lot more dangerous because of the quantity, like, the dosage is in the smaller space, but also because of the stampeding and the trampling that can happen. So it's, like, we're not short on recorded incidences. There's also a fantastic project from Amnesty International, which is like, if you go, if you just, like, Google “Amnesty International tear gas,” you'll see it. And it is a really light interacted with all these videos of over 500 incidences that have happened and what makes them excessive force. And it goes through all the things that makes tear gas so dangerous. So that is a good kind of starting place if you want to look into this more.

**JVN** [00:42:22] So what rights do protesters have to contest tear gas use against them? I'm sure it goes by country to country. So just like in the US, for instance.

**ANNA FEIGENBAUM** [00:42:33] So if you can prove excessive use of force, like, a lot of lawsuits are won against police departments, you know, many years, much time and resources and money after the fact, often civil suits are won. So a lot of times, also, settlements are made. So if you got hit by a projectile or you can actually prove that it was definitely, like, a misuse that, that injured you, often people will win settlements for that. But it tends to be case by case. And what that means is that there's not a lot of precedent that gets set. And so it's been quite hard to build sort of larger legislation, and this is true across, across countries. But I think this in what you were saying, of, like, “How do we think about the future?”

Like, what is different now than any other moment from what I have studied is that we are seeing since 2020, we are seeing states and municipalities and even on the federal level in



the US, people try to put either bans or restraints legally into the police use of tear gas and some of them, some of these are winning and some of them are contested. But, like, this is the first time we've seen any kind of legislative change at that level. So I think we actually are at a pivotal moment for how we think about that, right? And this is much more broadly true of policing. But, like, how we think about excessive force, how we think about what the point of police are, what their job is, what kind of rights protesters as well as, you know, just civilians who are heavily policed. You know, what kinds of rights do they have? I think we are in a very pivotal moment for that, which, which I think is promising.

**JVN** [00:44:18] Yeah. So is there anything that protesters could do, if you think that you could be in a position where you could find yourself exposed to tear gas, this is a two-fold question? Is there anything that you could potentially bring with you to, like, measure the amount of tear gas or measure, like, if you were able to get it on video, like, "Bitch, this tab, when you put it up in the air and if it turns purple, that means there's, like, a hundred million parts per square inch or something." Could you do like some fucking fierce field test, like, out in the field? And could we make it more affordable for people so that we could take them out and say, "You motherfuckers! This is, like, 80 times the legal dose!" or something like that.

**ANNA FEIGENBAUM** [00:45:51] No, I love that. I love that. And we, you know when, when you get a bunch of tear gas researchers in a room together, this is like what we try and brainstorm is like, how would you actually do this through scientific study, you know? And so, yeah, you would basically want to use the kinds of ways that we do citizen science on, like, air pollution or water pollution. You basically want to do that like you would have to be. I don't, like, I don't know what the right scientific apparatuses so, like, definitely ask somebody else that. But basically the idea of like you, you like, carry your, like, your plastic because you want to get her, you know, test you with you and then you can try and, like, capture the sample. Something I do know that you can do, and one of the projects that we run is called Riot ID, and it's got a website called RiotID.com, and that has guides for how you identify various kinds of less lethal weapons of the different kinds of canisters, the different kinds of explosions, that kinds of things that happen.

So, and when you talk through how you can safely photo document those materials. Yeah, and there's a great group that I promised that I would give a shout out to called the Chemical Weapons Research Consortium, and they're doing a lot of this actively now. They're based out of Portland, Oregon, but they've got people all over the place. And so they have been doing a lot of this kind of weapons IDing on the ground, and thinking about ways that we create kind of shared, shared knowledge on that site. So that's something that, like, you know, you've got your camera anyway. So let's say-, and you have to make sure that the conditions are safe for you to do this because, like, *leave*, like, if

you're buying into your gas tank, you don't want to get more hurt. Like don't walk towards, like, a smoky environment like that's really unsafe. People do it. But, like, as an, as an expert, like, I have, I have to say, do not touch it.

**JVN** [00:46:33] It's more, like, if you're there, and it gets, like, if it's about to deploy, get a picture and then get the fuck out, like, you have. Like, you have three seconds to act or...?

**ANNA FEIGENBAUM** [00:46:42] No, like, definitely leave. Like, if it hasn't gone off yet, definitely leave. But, like, in, there are situations where either you're far enough away or it's after it's happened and then you can go back and, like, if you're going to a photo document.

**JVN** [00:46:56] Like, so you would try to find the casings after it's over and be, like, "They deployed 20 here," or whatever.

**ANNA FEIGENBAUM** [00:47:00] Yes, yes. So, the casings, the architectural surroundings that you're in, so like do one of those like panorama shots like all around? Let's see, like, this is what I would do. I would take the camera. I would do, kind of, not too close because you can always zoom in later, but do your shots of the actual canisters in the place, do a zoomed out of the context of that place and then do a panorama of the space around you. Likewise if you have video, the same thing, but for video and this is what people are now using to do these kinds of forensics like forensic architecture and has been doing these incredible projects where they then take a bunch of civilian video and footage and photos, and they can actually try and recreate and model the density of the amount of tear those used. And there's some absolutely incredible projects up on the forensic architecture site that show you some of this, but you can do that on like a low-scale DIY version of that, just just with the kind of first technique sort of the same. And then if you get the serial number on the canister, then you can find out what kind of weapon it was, who manufactured it. And that is a good way. That's, that's kind of how we teach sort of civilian or citizen recording, what we call civic forensics.

**JVN** [00:48:12] So, OK, I'm obsessed with that. So those are some of the groups who are doing work to help to regulate this. So, like, top, top three groups, if you're hearing this year, just, like, "I'm mad as shit and I'm going to become a fucking tear gas advocate, from now, forever more." Where are the places that people can go to get involved with the folks that are working to regulate this?

**ANNA FEIGENBAUM** [00:48:33] Yeah. So I would look up Chemical Weapons Research Consortium because they are active. Your local ACLU is probably a good place to start. If you're more on the kind of medical side of things, there's a great group called Physicians

for Human Rights, and they are actually, people who are part of them that have done like the only existing, like, mega reviews we have of all of the, you know, different kinds of injuries that there are. So, like, if you're more of, like, a researcher head or, like, a science head then, I would say, Physicians for Human Rights, you're more like into the legal stuff. ACLU if you're like, want to know how, like, your community group or your advocacy group could get involved? I would try a chemical weapons research consortium. So it really depends, like, locally where you are, like who, who would be the right person to contact.

**JVN** [00:49:23] And then final question. Actually, I lied, two more questions. And, but, they can be quick if you're in a protest, if you are going to go to a protest and you think you may be exposed to tear gas. What is an expert, would you say, like people, like, must bring with them to try to best protect themselves or potentially do like we have on hand? Like, I think I saw people like pouring milk in their face. Is that, like, old wife's tale, does it really work? Is there? Is there any like neutralizer or like some neutralizer fucking grenade with, like, some anti-tear gas liquid and that shit? No? Maybe?

**ANNA FEIGENBAUM** [00:49:55] So, no, yeah, it's, like, there's all of these, like, home remedies and whatever. The only scientific study that I've been able to find and, like, the only times that, like, occasionally you find, like, a really avid chemist who, like, has thought about this: water is, is agreed upon by, by the scientists as the best solution. They say that these other kinds of things are not-

**JVN** [00:50:22] Cause you need to dilute it with the, like, the water.

**ANNA FEIGENBAUM** [00:50:25] You dilute it with the water. They say that things, like, the reason why milk or Coke works is more, over water, is psychological. I think there's a lot to be said for this knowledge as long as, like, you're not doing something that is causing more harm, but definitely water taking off changing clothes. As soon as you can, so getting all your clothes or anything that was exposed off of you, obviously any kinds of, like, masks and had head coverings, and we learned so much about mask wearing recently.

**JVN** [00:50:53] I was thinking about that, though. Is that, would a mask potentially keep it more trapped on your face or would you just want to make sure you have changes of masks? So if one mask gets exposed, you could, like, maybe grab one out of, like, a bag in your purse and just, like, change your mask so you're not keeping it all up in your face?

**ANNA FEIGENBAUM** [00:51:06] I wouldn't, I wouldn't, like, use a medical, like, the kinds of medical like disposable masks we're using for, for COVID, like, but you know, there's a reason why people carry bandanas and stuff, because that's, like, an easy way of at least at least partially covering. I mean, obviously, like gas masks are [CROSSTALK]. I mean, that's

why that's why people sometimes wear the full gas mask. But, like, if you're walking around the street with a full gas mask, you're definitely, like, a target for the police as well, so.

**JVN** [00:51:35] Oh, you are? They'll, like, they'll try to hit you with it if you have a gas mask.

**ANNA FEIGENBAUM** [00:51:37] There's places where masks are banned because, you know, in the same way, like, shields are banned because they say that that's like inciting a riot, so they don't see it as like protective equipment. Well, see this protective equipment. They're like, "Oh, you're starting a riot by, like, showing up with your gas mask or your shield."

**JVN** [00:51:55] Cause you know that we're gonna get gassed. I hate that so much! OK, wait, so now it's, like, yogini recess. We're at the end of the podcast. Is there anything that you would be remiss that we did not talk about that you would love to talk about that we need to talk about as it pertains to your research? What's next for you? What are you doing? Where can people follow you? Is there anything that we didn't talk about that you were just, like, really excited to talk about?

**ANNA FEIGENBAUM** [00:52:17] Ok, that's so many questions. I think I've given shout outs to all the people that I said I would. Oh, I guess the other two places, like, big places to go for information on these things is Amnesty International, as I mentioned before, and the Omega Research Foundation, which have a whole new visual guide to understanding riot control weapons. They also do a lot of following of the companies and what companies are profiteering. I think that is a really effective campaign method, so it's amazing to see all of this legislation happen. So that would be the other person is, like, contact your local government and see what they're doing about this and be, like, "Hey, these other places are doing this. What is this?" I found this amazing website that has, like, a round up of all of the different, it's from the International Center for Not for Profit Law, and they have, like, a whole roundup of the places that are doing, like, tear gas legislation. So if you're not on that list and you want to be on the list, like, contact your representatives. And then I would say, yeah, the other way into this is through looking at defund the police and police abolition movements and decolonization movements. So there's lots and lots of local, local grassroots organizations doing that work.

I am not working on tear gas anymore. I am a communications scholar, I'm not a historian of chemical weapons. I got interested in tear gas because of my interest in social change and communications, so I was a social movement researcher that then realized that tear gas had been around for, like, hundred years and was, like, "Oh, what is this? Why is that so?" And then that led to an accidental seven years of my life becoming a tear gas expert. So I am now on, like, other communication challenges. So I'm currently working on how

comics communicate public health messages about COVID-19. And I really like that because it's a really hard thing to talk about, and all the science of all the misinformation. So I'm looking at kind of creative strategies that people are using for that. And then my next big book project is on the fertility industry, where again, like, I really like these things that are really hard for people to talk about. So I'm looking at infertility and for-profit and profiteering and the fertility sector and these kinds of things.

I'm on Twitter @drfigtree. I'm like, do I have to change to @professorfigtree now? But it's too many letters. So @drfigtree on Twitter. Yeah, that's the best place. That's, like, the only thing I'm, like, remotely active on.

**JVN** [00:54:53] Anna Feigenbaum. I'm so grateful for your time and for your scholarship and for everything that you're doing, the information you shared with us. People follow her. Amazing. Your work is amazing. We're so grateful for you. Thank you for coming on Getting Curious. I feel, like, way smarter than I normally do after. I mean, I took so many notes. Thank you so much and that was amazing. Thank you so much.

**ANNA FEIGENBAUM** [00:55:17] Yeah, thank you for having me on. The show is so cool.

**JVN** [00:55:21] You've been listening to Getting Curious with me, Jonathan Van Ness. My guest this week was Anna Feigenbaum.

You'll find links to her work in the episode description of whatever you're listening to the show on.

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