

# Privacy Studies Podcast

## The Poison Trials, an Interview with Alisha Rankin

39min19

### SUMMARY KEYWORDS

testing, poison, criminals, antidotes, book, physicians, 16th century, trials, remedies, drug, marketplace, question, healers, sources, studied, panacea, poison antidote, works, people, medical

### SPEAKERS

Natália da Silva Perez, Alisha Rankin, Natacha Klein Käfer

#### **Natália da Silva Perez** 00:14

Hi, my name is Natália da Silva Perez, and you're listening to the privacy studies podcast. I am here with my co host, Natasha Klein Käfer. Today we're going to interview Alicia Rankin about her new book, The Poison Trials.

#### **Alisha Rankin** 00:33

Thank you so much for having me on this podcast. I'm really looking forward to our conversation. Alicia, I would like to ask you to start by telling us about your first encounters were the primary sources of the trials that you use in the book. Tells the story of how you, you got to this material. Yeah, this is actually a fantastic story of how I got to the first part of this book. Because I was actually researching a completely different project. I was researching my first book, which was on women healers in 16th century Germany. And I was doing some research in a very small archive in a tiny town called Neustein, in southwestern Germany. And the archive there is in this beautiful 16th century castle, which is about the only thing in the town, there's one hotel, a baker, and then this beautiful castle. And when I was, I was looking at these recipe collections from 16th century noble women, and the archivist whose name was Herr Beutner came to me and said, Well, if you're interested in 16th century medicine, please take a look at this file. It's really interesting. It's about a condemned criminal who was used for a test of poison. And you know, no one's really studied it. We think it's really introverted, like waiting for someone to come look at this file. And, and I said, Well, sure, this sounds amazing. So I did, and at the time, I immediately was like, This is amazing. I need to look further into this. And, and I thought at the time that my second book was going to be a project on 16th century German pharmacy. And this was I was like, Oh, this will be a great chapter for this book. But then in talking to colleagues, I realized that they'd seen some similar cases in other documents. And one of my colleagues said, Oh, I saw an archival document in Italy that says similar things. And then I had another colleague said, oh, you should look at you know, this set of printed works of Pietro Andrea Mattioli, there's poison all over his books. And there's a couple of these in there. So through that I piece together the fact that this was not an isolated case, it was a broader one. And it was a sort of this long process of becoming a chapter to an entire book, basically. So this this case is chapter four, the case I started with is chapter four of

my book, and it so is a chapter but it's a Chapter, you know about this broader phenomenon of testing poison on condemned criminals.

**Natália da Silva Perez** 03:16

Natacha...

**Natacha Kafer** 03:17

Yeah, I was wondering if you could tell us about how you decided to structure your book, because I think it was an amazing idea to divide it in the eight antidotes to tell the story. Because you deal with this very complicated question of authority, evidence and proof and how it is very entangled with like, political, theological and legal discussions... So can you tell us a little bit of how you decided that, like, you will go to structure dates based on the antidotes.

**Alisha Rankin** 03:47

That was really the hardest part of the book was figuring out this structure. Because I knew I wanted to have a chapter on, you know, the prehistory of what I was talking about in the book. So the book focuses on the 16th century, but there is a long backstory of testing on humans and then animals in the ancient world in the Middle Ages that I might want to make sure I got in there. But then, you know, there's this resurgence in 16th century Rome. And I so I had the, you know, the, the structure came very slowly. And I actually some of the chapters like chapter five used to be chapter two, and then I've moved to chapters around, it took me a long time to figure out that these trials, there was enough material on these trials and condemned criminals that they were going to be most of the book and I have a couple of chapters at the end, that move from the testing condemned criminals to other forms of testing and proof and one of my bigger points in the book is that there were a variety of kinds of testing and proof, but these poison trials on condemn criminals were introducing a sort of new variety of human testing which was the contrived trial Human subjects.

**Natália da Silva Perez** 05:01

Would you please comment on the differences in the language used to refer to this type of knowledge between what you find in the in the trials and the legal language of it and whatever you could find that was actually the practitioners language? Can you comment on that? I was wondering about words like secrets, and etc.

05:27

Mm hmm. So yeah, I mean, the word secret is often used to describe remedies in general, it's often to use just a term to describe a recipe. That's sort of the, you know, in the medical documents, it's just, it's almost a synonym, sometimes, although it can also be used to describe hidden, like, knowledge that you're concealing. And actually the, one of the main characters I guess, in the book, the Italian physician Pietro Andrea Mattioli makes this distinction between the kind of tests that the physicians or learned doctors are doing on poison, and the kind of tests that are done in the marketplace by charlatans. And he points to one of the big difference... because one of my arguments in the book is actually that these trials were a way for physicians to kind of play with the idea of a learned experiment, because experiment had generally been connected to lower class empirical healers, it was something that in the Middle Ages, physicians were generally trying to distance themselves from, because it was

seen as just not universal knowledge, just like it's singular instances rather than a universalizing idea. So there's a shift towards the late 15th century towards physicians drawing more in this kind of, you know, experiential knowledge. So, but this idea of a contrived test was really something you tended to see more among marketplace healers, showing dramatic shows of, you know, their, their potions in the marketplace. And the physicians were trying to show that their... that these poison tests are different. They're not your... So Mattioli is really contrasting the poison trials that he witnessed and oversaw with the marketplace variety. And he uses secrecy as one of his points. He says, Our poison trials are... my remedies, I'm making public. So here's the recipe for this remedy that we tested. It was actually he called it Scorpion oil. This is one of my remedies in chapter three is about Scorpion oil. And he was using this as an example of a well tested remedy. And he kind of explains how to make it as opposed to the charlatans remedies which are hidden and secret. So there is that idea, but in terms of your question about the legal sources versus the medical sources, I didn't see much in terms of secrecy there, what I saw was the term proof you find in both the legal and the medical sources. So in the legal sources, tests of poison tend to be conducted in order to see whether a given... whether poisoning has happened. So it's a case in which there's an accusation of poisoning. And this is not something I really touched on very much of my book, because other authors have discussed it. So this is sort of just a side side point in my book, but there was, you know, quite a consistent trend of testing substances to see if they were toxic in the in the court setting like if someone dies or is, you know, accuses someone else of poisoning and trying to test a subject substance that was poison, and that that term is generally a proof... a proof about poison. And you do see that same term proof used in the medical sources, but you also see other terms. So you see experiment, you see experience, and you see trial. There in the English language sources, you see the term trial so but experiments, the term experiment is used quite often, as is the term experience alongside proof, all of those are kind of there's no one term used to describe these events at this time period.

**Natália da Silva Perez** 09:35

Natasha, please jump the line because I want I also had a question about the social status, social ranking and or social class differences between the types of healer, healers, and then you touched on this topic. Can you can you expand a little bit more about the this competition between the what you call the marketplace healers and the more learned healers?

09:59

Yeah, And I think it was maybe not necessarily just competition, but also an attempt for the learned healers to separate themselves. So there's this tension. And this I tried to this is one of the big central points of my book, there's always this tension among the learner doctors of trying to be different from the marketplace healers trying to have something else that they bring to the table to preserve their elite status, but also to, you know, show that they are learned, because other university education is not for nothing, that they have a different... they bring something different to the table than the marketplace healers do. At the same time, they are so interested in all of these remedies, in a similar way to the empirics. And they're not ready to discount cures by empirics, even ones that sound completely far fetched. So throughout the book, there's this real interaction between the doctors and the empirical healers in a way that's kind of shifts depending on the circumstances, but it's not like they are flat out rejecting every single claim by the empirical healers. And a good example of this is my final chapter, it tells the story which is getting sort of away from from tests on condemned criminals, tells the story of a

German Alchemist named Georg am Wald, who came up with... he first published a poison antidote that was alchemically like he created alchemically that was very similar to some other poison antidotes at the time. And then he laid it... which was moderately successful. And then he later published a very similar drug, which he called a panacea. And it's the first time I've seen the word panacea, sort of all healing cure, cure all, used to describe an alchemical cure. So he created this alchemical panacea. Physicians were really skeptical of this drug, but they still went to investigate it, they were really interested in it, even though he made all kinds of wild claims about this could cure like 150 different diseases. And he showed he brought testimonial letters from patients to prove this. So his method of proof was not a contrived test, but rather testimonials from patients, which I sort of think of like online medical forums today, like the sort of crowd sourced medical information and... and so you know, he said, I, you know, don't eat don't if you could, you could if you wanted to take this and test it on a dumb animal with poison, but if you really want to know that it works, like listen to all these patients who have had it. And so the physicians were really intrigued by this. They were very... and they tried to investigate it. And even... there was a bit of a fight between this alchemist and the famous Andreas Libavius who was a physician and is often known as the father of chemistry today, but he was particularly interested in alchemical methods for medical purposes. And but he was very opposed to these empirical alchemists. But even he wrote to am Wald, asked him about his drug and was curious about it, was later appalled to find his letter among the letters that am Wald published as evidence of how wonderful his drug was. He didn't mean that at all, but he did, he did, he did admit to writing this letter so. So they just like really can't separate, they can never really separate themselves from the marketplace, even though they're they're trying to do so intellectually.

**Natacha Kafer 13:49**

I think that's an excellent segue to my question that deals more like this tension between private and public. So this letter that was not meant as like an advertising just became it. But I thought more in terms of how impossible it is for us to talk about experimentation in humans without talking about the ethics behind it, and how the rationale of the period was different than what we expect coming from today. And most of the examples that you gave in your book talk about like justifying it in terms of like it being for the public good. So if you could talk to us a little bit about like this tension between the private and the public. So experiments being done in public, but then many of them had to be justified, being done in private, but they're having to be justified then to the public. You even mentioned that with Caravita's oil test, that they had to publish a pamphlet explaining why it wasn't a public execution. So like all of the ritual steps of like the theological justification and legal justification had to be proven then to the public. So could you give us some more examples of that?

**Alisha Rankin 15:05**

Yeah, this was what I found one of the most surprising aspects of this whole phenomenon of testing antidotes in condemn criminals, because I would have thought going into it that you know, because these are all cases in which powerful princes granted condemned criminals to physicians to use for these tests. So the test almost always came at, like, the command, the impetus of a prince to test. So you would think that a prince could do whatever he wants with his condemned criminals. And then these are people who have already been condemned to death anyway, they're going to die anyway. But it was really clear that they could not do these tests without some kind of justification. And one of the problems was this ritual of execution, which was really important, this public ritual of execution,

which was so important, both religiously and culturally, in both Catholic and Protestant parts of early modern Europe. And it was, you know, they there was expected that I condemned criminals to have this probably was important, not just as a sign to others that they shouldn't do these crimes, whatever crimes have been committed, so is supposed to be impart as like a learning experience for others, to kind of prevent crime, but it was also for the criminal himself to try to get him to heaven. So it was, so there were in Italy, there were these confraternities in every city that would help guide the criminal to death in which he was sort of in the right way with God. And so they would have, you know, hold up images of Christ on the cross and religious imagery so that the, the criminal could hold that in his mind. And it would, it was thought that the if the violence of the execution, if the criminal died sort of at peace with God, that he could skip purgatory or the to get time off purgatory or even skip purgatory entirely and go to heaven. So like religiously, this was like saving the soul of this criminal, it wasn't thought that he was destined for hell, just because of his crimes, he could have this one like last moment of... in which he could... so the poison trial takes the criminal out of this public procedure. So almost all the poison trials I've done in private, he's taken out of this poison at this public execution. And so there has to be reason why you're doing that. So that was a part of the justification. And so there's kind of three different methods that they use to show that this is a special case, and that they recognize it and then they're so well, they're on one hand, trying to make it seem normal, like fitting into the... My second chapter talks about how they are trying to fit it into the practice of dissecting criminal... dissecting dead criminals. So most most anatomical dissections at the time, were done that were public, we're done on deceit and executed criminals. So the procedure that was required for that was often followed in terms of, of you know, what they had to do to use criminals for these poison trials. But they also, as time went on, they had to get the permission of the criminal. So that you see it emphasized and all of these tests, not the first one in Caravita's oil, but later ones, that they always say that the prisoner was willing to, and in fact, wanted to because he would prefer to die of poison in prison, then be executed in front of everyone. And this is a hint at the shame that came along with execution, so execution, brought shame on the criminal himself, but also on his entire family. So this was showing a willing, you know, this kind of, it was a gesture that the criminal actually found this a preferable way to die if it should happen. And then there was also the chance he would live. And if he lived, he was usually set free. In the early examples in Rome, for Caravita's oil, they were not set free but sent to the slave galleys. There is I think, one other case in Germany, where it was a particularly heinous criminal who had committed all kinds of violent crime. So obviously, you don't want to send that kind of person back into society. So he was his he was supposed to be broken on the wheel, which is one of the worst ways to die. And instead, he was beheaded, which was considered a much more honorable way to die. So he like even he had his sentence kind of ... and he was able to die in a more honorable way that wouldn't bring shame on his family in the same way. So there's these like, really real recognition that it was a special case to do these trials. And one of the most important ones was to emphasize that this was being done for the good of the public, not just for the good of the prince who is doing it. So there was a prince who had an effective poison antidote would have a lot of power. You know, this was a very potent sign of his power if you could prevent people from poisoning him. But poison antidotes were good for more than just poison. They were also seen as important plague remedies. So poison and plague were really closely tied in terms of their the way they worked in plague was often considered as a kind of poison. So an antidote to poison, and other epidemic diseases as well, but especially plague, so an antidote to poison would be good for more than just saving the prince from poisoning, it would be good for helping his people against plague. And that part, that public good, is what really shows up. So these two things

that, you know, they're supposed to get permission from the criminal, and it's for the good of the public, starting in the 1560s, those appear in every single poison trial I found, like, those are emphasized. And they're really central to the justification for this, which I just thought was so fascinating. In my fourth chapter, I know that those two things, the getting consent, and the public good, are the first two articles of the Nuremberg Code that came after I, you know, and then the wake of the Nazi experiments. So it just shows that those ideas are actually even though they're they are codified much later, those ideas are actually ideas that existed way earlier than we thought. So I found that so fascinating.

**Natacha Kafer 21:30**

Natália, can I ask another question that just... I got inspired now, because coming from your previous book, *Panacea's Daughters*, you worked a lot with, like, noble women, and how they went about, you know, creating and disseminating healing knowledge. And now you you mentioned in your introduction, like this gender shift that you notice when it comes to poison. Women are usually seen as the poisoner, and like, the people that are developing the antidotes are most men, although there is like a lot of more nuance to that. But can you tell us about like, did you notice any difference in the the way they justify their knowledge and the choices that they make, when it came to like your sources from, from your previous book into this book now?

**Alisha Rankin 22:20**

Oh, that's a really interesting question that I had to think about for a minute. Um, the, I think, because the impact of these poisoned trials was so much more frightening... We're getting into, with these, male trials.. they are male princes, male physicians, male criminals in all cases. But it's a much more public arena than the women that I studied in my first book. So my women in *Panacea's Daughters* were doing all kinds of testing themselves as well. But in the sense of just trying things out, like, I had one example from when my favorite noblewoman I studied was Dorathea van Mansfeld, who was a countess, and was just like, driven to find new medicines. And so she was constantly trying to do new things. And she would say, Oh, I'm gonna test it out on my children, and then see how it works. And let you know. I mean, her children are grown out of that, you know, they're adults at the time. But, um, or test it out on servants. So that that shows up in letters, and it's all, but it's all in the background. It's not anything that the broader public would really care about, or probably even find difficult, because it was, you know, ways it was attempts in it, trying to see what happens on sick people. And this is a very common way of testing, I think I, I make the point in my book that the most common way of seeing if remedies work, were to just try them out on people who are sick and observe them. And this was true both in the learned medical sphere, but also, in lay, lay people like the noble women I studied would do the same. Whereas these contrived, poisoned trials are much different because they involve the legal system, because it's the condemned criminals. It involves princes and physicians, and it's just a little bit more high profile. And because you're kind of taking these criminals out of the execution, it's it's much more important to have a clear justification for it. And it's also testing something that's dangerous. So the other kinds of testing I saw among the noble women I studied... they were they never thought that the things they were giving the people they're testing on was going to kill them. It was like it might not help against that, like the stakes were much lower. It was like maybe it will help against this illness, and maybe it won't, it's not going to you know, make them fall down dead. So I think that was the real big difference in the approach of... So I don't know if it's so much of a gender phenomenon as it is just this much higher stakes of using deadly drugs that is using poison. But I was really actually like it was a bit

of an identity crisis focusing on only men in this book. To that point in my career, I really saw myself as a historian focused on women and gender. And then I wrote this book only about men. And it was like, you know, and I did I put that part in the introduction, because I wanted to emphasize that there is still gender, gender is still at play here. And there's a reason why this is a very male sphere. But you know, then there's a lot of women in the background in my book that don't appear in the public. So here's another good public/private dichotomy that, you know, all the reports of these trials, a lot of them are in printed sources. And the printed sources never mentioned women, there's no women mentioned, if you look at the archival sources, women start to show up in some places. So like in my the original case, I found my which is my fourth chapter, the other one to test this drug called Terra Sigillata. And the drug was initially procured by the mother of the count who wanted to test it, she was really involved initially, she's mentioned in all of the archival sources, she appears alongside the prints as like, you know, the various decrees I have on her, her name is always there as well. But in the printed source, there's a printed description of this trial, and she's not mentioned at all, like you would never know that she's there. So the women get edited out of the public printed materials. So there are women in my book, they're just like hiding in the side in the shadows.

**Natália da Silva Perez 26:51**

I think it's absolutely a good point to to remember and remind the readers that, you know, just because you're talking about men that gender isn't at play, of course, it is at play. It's a very good exercise to make to have that reminding. I wanted to ask again, about the social differences between the marketplace and the learned heal... healers. Do you have any sources that you can have any clue about what the low class healers thought about, or how they perceived their practices? Because I mentioned that it's much more difficult to find sources, of primary sources about them, right? Yeah. Can you just comment a little bit on that?

**Alisha Rankin 27:39**

So it is really hard to find primary sources. I mean, there's a few written from the perspective of these empirical healers, but they're usually healers who have education. So like the Italian... William Eamon has written on the Italian surgeon, Leonardo Fioravanti, who published a ton, and was an empirical healer, who was a thorn in the side of a lot of physicians. And he didn't really do these marketplace tests, though, his drugs were were different. But he did kind of have this idea of... he wasn't really focused on poison so much as the idea of a universal cure. So he, you know, some of some of the ideas that the alchemist that I look at, in the last chapter were trying on, he also promoted. In my German sources, I mean, I only have... the main things I have are from a couple of alchemists who, although are not licensed doctors, are learned. So you know, one of them has a law degree. So they don't he doesn't really fit into the brand of appeal here. He's on a marketplace empiric. The one kind of source we do have from the marketplace empirics, and we tend to have more of them from the late 17th century onward, so there's not but we know this was going on in the 16th century, are certificates from authorities giving them specific licenses for drugs. So there was, you know, the judge... So in theory apothecaries, were supposed... the pharmacies were supposed to be the only people who sell drugs. In practice, often empirical practitioners could get a special license for a specific remedy. And some of these were poison antidotes. These like poison antidote-panacea combinations that I, you know, talking about throughout my book. So these aren't from the perspective of the healers, but we can kind of read them a little bit into these licensees of explains, you know, their motivation, and it gives

our names often in a way that we don't have in some of the other sources. And often they do a public demonstration using poison on animals to see if this antidote works. So this idea of the poison trial, this marketplace show that Mattioli is like railing against, is actually exactly what is used to test these drugs. And then what you know, to get these special drug licensees. So once again, this division between learned and lay is so hard... because there are physicians on the boards, like overseeing these special drugs, licensees, so they are giving permission to these empirics on the basis of their like marketplace poison trial, that they're showing them like in front of the board, while at the same time saying that this is not a valid way of testing. So it's very, you know, it's a really confused method. Like, it's, they're using one argument in one place, but also doing something else in the other. And also, I think, part of my argument, and my conclusion is that these up and down, you know, the poison tests are very appealing because either the subject lives or dies, like it seems to have a clear answer. And that's really appealing, even in these cases of empirical practitioners, where physicians are very skeptical if they can actually show that they can poison, you know, a couple pigeons and then revive them with their incident that has a powerful method. And of course, there's all kinds of questions about what was actually happening, like, were they really getting a fatal dose of poison? Was this really like, you know, well, you know, we it's unlikely any of these antidotes would actually be something you would want to take if you are poison today. Like I would recommend other methods of curing you... but um, but for physicians at the time, this was really what they really had a hard time rejecting this... what seems like a very clear test of of antidotes, even though they wanted to separate themselves from the marketplace. So it's all very complicated.

**Natália da Silva Perez** 27:39

It's very interesting. I wonder if people have tried and do you know, if anybody has tried these, their recipes, or if they, you know, are complete enough to to be tested scientifically?

**Alisha Rankin** 31:51

Yeah, so some of them are recipes. Most of them were just substances, not like single substances not... so what you would call simples at the time, not combinations. Um, there were there were a few, like these all chemical ones, were the exception to that. But the most common ones that came up were bezoar stone, which Harry Potter readers may recognize as an antidote that was used there, but um, which was just the calcified deposits left in the stomach of some ruminant animals, and the most valuable bezoars came from Persian mountain goats. So my fifth chapter kind of talks about the importance of these antidotes as valuable substances that were in princely cabinets of curiosity, as well as you know, in their kind of remedy collection. So they're both they're valuable, both in terms of their healing potential, but also in their actual worth. Bezoar was extremely rare, before the Portuguese invaded parts of South India, and then it became.. still very... it was more common, but still very expensive after that, but bezoar, I think, there's been like, I saw one mention of a scientific paper, that tested bezoar and showed maybe some efficacy against arsenic specifically, but I could never find the paper... like, the reference took me to link that didn't work. And I could never, I could never verify that... whether this was true or not. Another drug that came up a couple of in several chapters of my book was a clay called Terra Sigillata. And which just means sealed earth, and it was sealed because they would put a stamp on it from wherever it came from. So the initial Terra Sigillata came from the island of Lemnos, off the coast of present day Turkey, which was first Greek and then Turkish, at the time, and so that was sort of the initial, but then other European earth started to be called Terra Sigillata. And

there was a particular German kind that was tested in various tests. And that was the one that was most consistently worked in the tests at the time, like I didn't see any of the Terra Sigillata tests that were failures. I did see some failures of some of the other tests. And there have apparently been a couple of studies of Terra Sigillata that suggests there may actually be something... like that there might be some astringent properties that that help counteract some poisons... so that there may be some efficacy there. But that's really the only one. Some of the stuff, something like Caravita's oil, which is an external remedy. It's an oil, you rub it on the temples and the heart, has like great religious connotations to it right? It's hard to imagine how that would be something that we could see as effective today, because it's, you know, external. But yeah, so I think there's been very few scientific studies on these antidotes today. And the ones that have are like, you know, maybe but not not to the same dramatic effect, certainly, that you saw at the time.

**Natacha Kafer** 35:06

I have a question that I'm dying to ask. How was it for you to write and like being the process of publishing this highly relevant book right when the pandemic hits?

**Alisha Rankin** 35:19

Oh, my goodness, like talk for an hour on this topic...

**Natacha Kafer** 35:28

So did you have to, like, reevaluate your conclusion? Or like, how did you go about it?

**Alisha Rankin** 35:32

Well, yeah, so I got the copy edits for this book, which is, for listeners who don't know about the publishing process, the copy edits are just basically the last time you have to make substantial changes. So you get the you know, your Word documents back with all sorts of suggestions, and you have the chance to add, add or change things. I got those on March 13 2020. So literally, like, the Friday that my kids school had shut down, and you know, we're in the middle of everything. And all of a sudden, I was faced with this book I had written, that suddenly seemed really relevant, and all the conversations that were happening about hydroxychloroquine. And there was, you know, early on, when they're talking about vaccines, there was a lot of conversation about whether they would do sort of stress tests where they would like it, you know, give people a vaccine, and then deliberately expose them to COVID, to see if the vaccines worked, or, you know, so there were questions about whether the ethics of current, you know, medical trials would shift a little bit just to quit more, be more quick and sort of getting the vaccines out. And that didn't end up happening, but there are conversations about it about changing ethics. And so I was like, What am I going to do with this? Do I have to completely like rewrite my conclusion? And I talked to several people about it. And they all said, No, this is about the 16th century, it's not about today. But you know, maybe... so then what I decided to do is add a section to my introduction, in which I have a couple of nods to COVID. I added a couple of nods to it in my introduction, as well. And then I added a whole section kind of explaining about poison and a pandemic. And the ties I saw and a lot of it was more about questions you're asked when faced with, you know, unknown medical situations. So like, what counts as success? What's proof of this? Like, how do you politics... and this was really especially relevant last March and April... How are politics... how do politics invade the medical process and in these conversations? And, you know, how do we decide, you

know, that something works like, what is the what is the level of proof that we need. So all of these were, like, so relevant at the time. And I tried to make the point that this is, you know, I'm not trying to there's a big distance between 16th century poison testing and the COVID experience we had just now, but I tried to point out how much more bewildering it must have been, at the time when there is no.. no concept of why diseases happen, scientific medicine as long in the future. You know, that their literacy levels are so much lower, there's just a lot of data how much more bewildering it is at that point in time to to deal with these medical questions. So trying to get the reader back, you know, using COVID as a way to help the reader think their way back into the past.

**Natália da Silva Perez** 38:35

Alisha, this was a really big pleasure. Thank you so much.

**Alisha Rankin** 38:39

You had such great questions, and it was so much fun to talk to both of you. So thank you so much.

**Natacha Kafer** 38:44

Let's keep in touch.

**Alisha Rankin** 38:45

Yes, definitely.

**Natália da Silva Perez** 38:49

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