**Justine:** Heads up, there are a couple swears in this episode. Here’s the show!

**Justine:** This is outside in a show about the natural world and how we use it. I'm Justine Paradis here with producer Felix Poon.

**Felix:** Hey! So today's episode is the second Outside-in Book Club featuring science journalist Annalee Newitz.

**Justine:** Annalee Newitz is someone who talks and writes a lot about the future. One of their novels is called The Future of Another Timeline, a sci fi crime story that involves time travel, and they host two podcasts, one that's called Deep Futures, in which Annalee invites us to, quote, escape into the distant future to learn what's coming.

**Felix:** So clearly, Annalee thinks a lot about the future, and the human species. And when they try to imagine possible futures, they often draw on the ancient past.

**Annalee:** And so, for example, if I'm writing about the world in 150 years, I like to look back 150 years and find out, well, how different things really were. You know, like, are there continuities? What are the surprising continuities? What are the complete drastic differences?And so I think it's really important especially right now, when I think we all know that we're at an inflection point in human civilization, that we think about what happened the last time we had civilizations that were becoming unstable or transforming really rapidly.

**Justine:** For this month's Outside-in Book Club we spoke with science journalist Annalee Newitz about their latest book - Four Lost CIties; A Secret HIstory of the Urban Age. It’s a look at four ancient cities: Pompeii, of the Roman Empire, Angkor, in modern day Cambodia, Catalhoyuk, a city so ancient it’s hard to imagine, and Cahokia - an indigenous city near what is now St. Louis, Missouri.

Through these four cities, Annalee explorers, and how our conception of the past changes, with both new technology -- and new ideas. And, in the face of the existential threat of climate change, we also talked about what the stories of these cities -- can tell us about humanity’s future.

**Felix:** We started our conversation with Annalee by asking them about one of the first known cities in the world, Catalhoyuk.

**Annalee:** Catalhoyuk, is a city that is located today in central Turkey. It's about 9000 years old. And it's sort of like a honeycomb. So if you look at it from above it looks like a kind of geometric shape that's all just squished together on top of a hill. All of the houses are made from mud brick. They all share walls. And each time a house would crumble, which was about every 20 or 30 years, people would build another house on top of it. So by the end of the city's life, it was on top of this pretty big hill that was made of these crumbled old houses underneath the foundations of the new houses. And people spent most of their time during the warmer months on their roofs. So it was almost like a two storey city. And you would get into the city by climbing a ladder onto the roofs and walk across the roofs to get to your home, and you would enter your home through a doorway in the roof. And these doorways would have probably been covered by structures. It wasn't like rain could just kind of come into your door and there'd be a lot of stuff happening on the roof. People would be doing chores on the roof, cooking, making tools, anything that required light. And then in the downstairs area, in the sheltered part of the house, there was always a hearth and there were always bed platforms where people slept. And some of those little cell houses would have been abandoned and turned into trash heaps. So people were squished in next to each other and next to dumpsters, basically. So it must have been fragrant, shall we say

**Justine:** So Felix, I think what's so powerful for me about learning about Catal, which is what the archeologists call it, as we learned. Right. So the change from being a nomadic species to being a settled agricultural urban species is such a profound change. And Catal really is that moment. And I think like it's wild to hear about, like what the sort of transition centuries were like in this city, like living in a honeycomb. It's so cool.

**Felix:** Right, like there must have been some kind of culture shock to like go from nomadic living to like being all bunched up in this one place. So like Annalee, like talking about some of these downsides of living in a city like the smells and being bunched up together. But the upside you get is when people come together and form an urban community is innovation. And I thought it was really interesting. You know, when we talk about innovation in the 21st century, we usually think about like phone apps, like something digital, something like very almost sci fi. Right, right. Like, that's our high tech. But their high tech is like, you know, it's completely different. In Catalhoyuk, it's really fun to hear Annaly talk about this particular discovery of their high tech that was made at this excavation site.

So they were there with this archeologist. His name is Ian Hodder.

**Annalee:** He pointed to this like rebar that had just been jammed into the ground several yards away from me. And he was like, that's the dairy line. And, you know, I was like, what? What's that? That's the that is the place in the stratigraphy where they start to see people cooking with milk. And I was like, holy crap, you know, like to me that's like as amazing as like humans going to space. You know, it's like there was this incredible breakthrough in how we could live at scale. And the breakthrough was, wow, we had these goats and maybe we could, like, eat the thing that the baby goats are eating. And this is a really significant moment in human history, basically, because a lot of adult humans can't metabolize milk, but because people start domesticating animals, it became so advantageous to be able to metabolize milk and eat milk that a mutation, a genetic mutation for metabolizing milk as an adult swept through the West just over a period of a few thousand years. And then I talked to an archeologist who said that we have evidence that they almost immediately started figuring out ways to dehydrate milk and so they could have like instant soup made with dehydrated milk, like mixed with grains and stuff like that. And so they just they had a frickin’ cooking revolution.

It was like amazing. And so at that moment, I was like, I understand who these people were. They were. Innovators, they were high tech people, and to me, that's that's kind of urbanism is like people coming together and coming up with weird ass stuff that they never would have thought of if they'd just been living together with 50 people wandering around instant soup.

**Justine:** I love how Annalie draws this throughline from the Catal Instant Soup, which I would love to see like a branded, you know, marketing version of that, like our instant soup, our instant ramen. So like even though that city doesn't exist anymore, we can feel a connection to digital, whatever the next time is that you don't feel like making dinner and you like pull out that pack of instant ramen.

**Felix:** Right. Maybe we should bring it back again to some entrepreneurship here and do a Catal instant soup. Get it at your local grocery store.

**Justine:** Yes. Screw podcasting.

**Felix:** There’s so much that’s interesting about what life was like living in Catal. But what’s equally fascinating is how people decided to leave and abandon the city. And archaeologists don’t all agree on why Catal was abandoned. after over a thousand years of being inhabited. But what Annalie writes in their book, a likely cause was climate change.

There was this event that scientists call the eight point two KA event because it happened eight point two thousand years ago when essentially Earth was emerging from an ice age and massive amount of fresh water emptied into the ocean and disrupted this thing that's called the thermohaline circulation just through it out of whack. And basically what that meant was warm water wasn't able to traverse the globe

**Justine:** And that made things colder. Temperatures dropped about four degrees Celsius around the Tajik area. There was a drought, food shortages and all that probably led to people leaving the city, which meant that there were fewer people around to fix homes that might have been crumbling, infrastructure falling apart, and potential dynamics of social inequality. Whatever the reasons, the city emptied out over the course of a few centuries.

**Felix:** But here's the thing, though that's really interesting. Even though Catal was abandoned, Annalee says there's no such thing as a lost city. Here they are reading a passage from their book on this.

**Annalee:** Terms like lost city and civilizational collapse are the wrong ones to use in a case like this. Instead, it's more accurate to say the city underwent a transition. Indeed, there was never a time when Catal, who wasn't in transition from one kind of cultural arrangement to the next. That's the difficult part about studying cities. They're not static entities that remain the same over time before suddenly disappearing into nothingness.

**Felix:** So Justine, this got me a little confused because I'm like, wait, isn't the title of your book Four Lost Cities?

**Justine:** Right, here’s how they explained that.

**Annalee:** It's a little bit of a myth busting move. I think it's a bit of a troll. And it was really because I wanted to invoke that sense of mystery and to call to mind these cities that many of us know pretty well from the myth in order to explain, actually, no, these were not lost. These were abandoned. And here's why. It's because people made the choice to leave that city and that was a political and a cultural choice. You know, no city ever loses itself.

**Justine:** Annalee says one reason why the lost city is such a pervasive myth is partly just pure entertainment Like it's a fun idea to think of a city as being lost. Like I think about, you know, the lost city of Babylon or something, right. Because then you could tell the adventurous tales of the people who discover it.

**Felix:** And another reason that cities are thought of as lost happens when Western archeologists, quote unquote, discover a site in a non western part of the world.

**Justine:** Classic move.

**Felix:** Here’s what Annalee had to say about that.

**Annalee:** Often when you get a story about, say, the city of Angkor, which is in today's Cambodia, that was a city that was never truly abandoned. People continue living there. But when Europeans stumbled on it in the 19th century, they wanted to claim that it was a lost city, partly because they wanted to disavow the fact that Southeast Asia had been home to the greatest civilization in the world just about a thousand years before. When I say the greatest civilization, I just mean the cities were bigger than any other cities in the in the world at that time. This was a massive empire, the Khmer Empire that was based at Angkor. You know, it would have easily challenged any kind of European, you know, settlement or city at that time. And, you know, it's it's really in the interest of a colonizing force to say nothing's ever been here. Nothing of note has ever been done in this country. When we come in with our European ways, we're the ones who are creating a civilization. Anything else is lost. And we see the same pattern in the Americas when Europeans come across the ruins of a city like Cahokia, which I talk about in the book, which was a massive city, that was a going concern about a thousand years ago, long before Europeans came and Europeans were like, maybe Egyptians built this like, well, we're not sure, but it's definitely lost. Whatever it is is not here anymore. And we are the only civilized folks here.

**Felix:** Ok, so the myth of the lost city exists because it's entertaining because of colonialism. But a third reason Annaly points to is because of the strong cultural association in the West with the end times,

**Justine:** The end times,

**Annalee:** You know, especially here in the United States, like oftentimes we associate change with apocalypse. it's a kind of comes out of that whole Judeo-Christian idea of like, you know, oh, my God, the apocalypse is coming. Like, it's always coming. And, you know, that's like what our civilization kind of uses as a metaphor for change.

**Justine:** So Annalee says this idea of lost cities was popular in the 19th and 20th centuries, along with the idea of a collapsed civilization like one that just disappears, no longer has any influence on the modern world. You know, it was just a dead end.

**Felix:** Yeah, this idea is still pretty popular, actually. [In 2005, some of you might know the author, Jared Diamond. He published a book called Collapse: How Societies Choose to Fail or Succeed.](https://en.wikipedia.org/wiki/Collapse:_How_Societies_Choose_to_Fail_or_Succeed)

**Justine:** God, to be reminded of the subtitle of that book, Choose to Fail or Succeed.

**Felix:** So he paints this picture of several civilizations that he says brought about their own collapse and commits a kind of quote unquote, ecocide or ecological suicide, essentially saying like they are to blame for their own demise. And, as Annalee told us, a lot of archeologists actually take major issue with this

**Annalee:** Because first of all, just because the city is abandoned doesn't mean its civilization dies. You know, people might leave an area and move to a new area and start up again with a lot of the same beliefs and practices of the civilization that supposedly collapsed. And so archeologists I talked to prefer to use the term, you know, civilizational transition so that like, say, when Chatel Holyoak is finally abandoned, there's a very clear pattern that we see that is a transformative pattern. And what happens is, And Ian Hodder put this to me in a very poetic way, he said basically, it's like the city of Catalhoyuk is like a dandelion and it explodes. And all of these people who had been living there leave. And so we see the city empty out around the same time that we start to find the remains of small villages all around it. And then, you know, during the great kind of Mesopotamian flowering of urban life with cities like work and stuff, you know, many thousands of years later, we start to see those emerge in the region and they're very different, but it is one that has grown out of this previous civilization. And so if you're thinking about how civilizations work, it's really important to remember that just because people abandon a great city or a set of monuments, it doesn't mean that they've stopped having the culture that they had in those places.

**Felix:** I just love that dandelion metaphor

**Justine:** Totally. Yeah.

**Justine:** Yeah. And Annalee actually applies this exploding dandelion understanding of the past to the future that we're looking at now in twenty, twenty one and the existential threat of climate change,

**Annalee:** The looming threat of a new mass extinction and how humans might survive it

**Justine:** That's coming up after this break.

**<<BREAK -- NEXT BOOK CLUB PROMO>>**

**Justine:** Before we get back to our conversation with author Annalee Newitz, we like to announce our next Outside-in Book Club pick.

**Felix:** Our next book is Fuzz When Nature Breaks the Law by Mary Roach. It's an investigation into the unpredictable world where wildlife and humans meet like what's to be done about a jaywalking moose

**Justine:** Or a bear caught breaking and entering or a murderous tree.

**Felix:** So used to be that animals that broke the law would be assigned legal representation and put on trial. But these days, as author Mary Roach writes, the answers are best found in science.

**Justine:** So let us know if you have any questions. Do you think we should ask Mary Roach? You can email us or tag us on social media. We're at Outside-in Radio, on Twitter and Instagram. You can also use the hashtag Reading Outside-in. And again, the book title is Buzz When Nature Breaks the Law by Mary Roach. It comes out on September 14, 2021 - we’ll link to it in the show notes and on our website, outsideinradio.org. OK, back to the show.

**<<BREAK>>**

**Justine:** We're back. Today’s book club episode features Annalee Newitz, whose latest book is called Four Lost Cities A Secret History of the Urban Age.

And before we jump back into things, Producer Felix Poon.

**Felix:** Yes Justine Paradise?

**Justine:** Address people by their full names, always, um.

**Felix:** And titles.

**Justine:** But I gotta ask you though, our titles aside, I gotta ask. Did you have a favorite moment from our interview with Annalee?

**Felix:** Yeah there were a lot of good moments. But I think the one that comes to my mind most is the part where they talk about licking a bone.

**Justine:** Oh yeah! That was, that was probably, I mean how can you really top that moment. I think that was my favorite moment too. Uh, this was when they were talking about an excavation in Cahokia, which is in Illinois just across the Mississippi river from the city of St. Louis. And they dug up this lump of some sort of clay-like thing from the floor of this house, and Annalee asked these freshmen archaeology students who were there digging with them, ya know, like what is this thing, what is this lump?

**Annalee:** And so they were like, well, do you want to know if it's a piece of ceramic or a bone? And I was like, yeah, I want to know. And they're like, well, you got to lick it. And what you do at these sites isif you lick a bone, your tongue will stick to it because bones have a kind of like a honeycomb texture so that your tongue sticks to it, unlike, you know, ceramic, you'll just kind of lick it and it won't really be sticky. So I licked it because, you know,

**Felix:** This is what you do, you lick bones

**Annalee:** Yeah, right. I'm an investigative journalist. I will investigate with my tongue.

So so I licked it and it was a bone and it was really cool. I mean, it's kind of gross, I guess. But I love the fact that, like, somebody had chomped on this bone like a thousand years ago and now I was like back there licking a bone.

**Felix:** Do we know what kind of bone it was that you licked?

**Annalee:** It was probably a deer bone it was almost certainly. They barbecued it and threw it away and figured that that was it for that bone. Probably didn't anticipate that in a thousand years archeologists would be like, yeah. Wow. Cool.

**Felix:** And can you imagine at our next barbecue someone like a thousand years down the road, you know, licks of bone that we ate from our, you know, you know, summer barbecue v.

**Annalee:** But yeah, I always warn people that one of the things that I learned from my many years of studying archeology now is that trash is gold and that we learn a lot from trash. And so when you're throwing things away, keep in mind that the things that you may be remembered for in a thousand years are the is that is your trash, not the beautiful things that you wrote, not the wonderful podcasts you recorded. That stuff will all be gone, but that, you know, thing that you threw away, like they'll be like, oh, this tells us a lot about their material culture.

**Justine:** This is devastating Annalee, just devastating.

**Felix:** That was such a gem in our interview with Annalee.

**Justine:** You say gem, and yet I was left feeling completely horrified as I was thinking about what would my trash pile yieldv. Or the trash that is my browser history, can you imagine for I would rather not..

We were talking in the first half of the episode about how cities that are abandoned are kind of like dandelions.Like Annalee was talking about this metaphor that they explode and then they flower in other places as new cities that are in a lot of ways evolutions of the old city.

**Felix:** Right, and we were curious to know from Annalee, like, why study cities in the first place? Like we get studying the past to understand the future? But why cities in particular? They told us that it had to do with their previous book - a novel, called Scatter, Adapt, and Remember.

**Annalee:** And a big part of my research for that book kept coming back to the fact that cities are actually incredibly good at survival vehicles for large numbers of people and that they can also be built really sustainably. And I just I love the fact that cities are a concrete embodiment of collective human action, and that is such a beautiful and profound thing to see. Even when the city is super screwed up, you can still see the work of so many people embodied in it. And it's it's just fascinating. And I wanted to know, how did this ever even happen? If we start doing these, you know, it's just it's just the weirdest thing ever.

**Felix:** Yeah, how are they better survival vehicles than, say, some different configuration, like a nomadic lifestyle or a rural lifestyle?

**Annalee:** So, you know, there's a lot of environmental activists who are thinking now about how cities can be used for more efficient scaling of energy resources, health care resources, food resources. It's a lot easier to deliver goods and services to people who are in one place than it is to bring it to people in a lot of scattered rural areas. And we're seeing this now in the United States where rural areas are suffering more from environmental disaster. They're suffering more from lack of health care resources, lack of access to information, resources like just plain old Internet connections. And so the more that our population grows, the more it seems to make sense to keep us as much as possible, you know, you know, in a space where we're closer together.

**Justine:** One of the most surprising lessons, on the resilience of cities, comes from what is usually described as a terrible disaster: the destruction of Pompeii. Pompeii was buried under 20 feet of hot ash when Mount Vesuvius erupted. And Annalee says that what most people don't realize is that most Pompeian survived. There were some initial earthquakes and an initial eruption of smoke that triggered an evacuation of the city before it was buried. In fact, when archeologists look at the city that's preserved in the ash, they're actually seeing the city in a state of disarray as people were in the process of trying to flee. Here’s Annalee.

**Annalee:** The transitional aspect of that story is that, the Roman government actually came in and did a whole disaster relief program. The emperor at the time, Titus, and then later his brother Domitian, paid out money to a lot of the local cities that had survived that were that were on the coast. And so cities like Naples, for example, got a lot of money to build new neighborhoods for refugees. And they came to live in all these other coastal cities in that region of of of what is now Italy. And we have all of these records from gravestones and from, you know, other remains that that they formed these really vibrant refugee communities and they stayed together identifying as Pompeiians and intermarried. And so there was a huge amount of continuity there.

**Felix:** The other interesting thing that Annalee writes about is that a lot of people got a fresh new start, like the formerly enslaved. They got to inherit money from their rich patrons who perished in the disaster. And so because of that, they were able to jump up the socioeconomic ladder.

**Justine:** Some of them I think also just ditched their old names - like the names associated with their enslavement, and just you know pretended to belong to a different social class, and they were like why would I take this identity forward.

But yeah anyway, I was really interested in how this could be a model for how we might handle climate, migration and climate refugees like this has happened before at refugees from a natural disaster. And if we take notes from the Roman playbook, our government should invest in resettling people and build up neighborhoods and provide resources for them.

**Felix:** I also think Cahokia is a really interesting city to think about as a city in transition.

**Justine:** Totally. Yeah. So Cahokia is the one that's in the modern day United States. It's located in Illinois near what's now St. Louis, Missouri, and its apex was in 1050 CE with a population of up to 30000 people. Annalie describes the culture as Mississippian, like the culture of Cahokia lived on in different tribes, including the Osage. But the thing I thought was most fascinating is just how much Cahokia was actually built as an impermanent place as an impermanent city.

**Annalee:** when you were done with a house, you burned it down and you built a new house. You didn't preserve the house. You didn't have a historical preservation society. And it really does appear that this was how people treated the city as well. The city went through a number of really dramatic transformations during its, you know, three to four hundred year lifespan. And at a certain point, people just started leaving. It appears that there were some conflicts in the city and the neighborhoods in the city began to move further and further apart from each other and finally just left and probably became, you know, members of the groups that later became the Sioux tribes and the Sunni groups that are scattered across the plains. And I think it's a great lesson for us in the West for, you know, the settlers, the colonial settlers that came to the Americas.

And we brought with us folks from the West brought, you know, a tradition of city building that we kind of inherited from Rome, which was like, you build a thing and you want it to last forever and you want it to be made from stone and you want your roads to be made from stone. You want your your roads to last forever. And so we kind of have a clash here in the Americas between those two ideas of what a settlement does and how long you stay there and why you make them. And so I think one of the lessons that we get from these cities is that, you know, cities don't have to be permanent to be awesome.

**Felix:** Right. Yeah. And maybe there's a lesson there, actually, as we go into, you know, this era of climate change and climate migration.

**Annalee:** Yeah. I mean, how do you build a city that can handle that kind of adversity? And one answer is like like with Cahokia, you don't build the city that you expect to be permanent, like expect your city to move around, build cities that can be broken, that can leave no trace, you know, that are like basically recyclable, essentially. And indeed, that's what what you see it Cahokia, everything in the city was built from wood and and it's no longer there. All that's left are these beautiful earthen mounds. And so I think we do need to be reexamining how we think about settlement as we go into an era when the climate is going to become more and more unpredictable.

**Felix:** So, Justine.

**Justine:** Yeah

**Felix:** How optimistic are you feeling about climate change in light of everything you've learned from these four cities.

**Justine:** Nice softball question, Felix. One thing I did an episode on climate migration about a year ago from when we were recording this a little little less and one of the experts, it was a geology board, said impermanence is going to be the new normal. And we just we kind of have to get used to that. And that can either be a deliberate or an intentional process or it can be, uh, um, you know, a process of refugees and people having to move from place to place without, you know, institutional support. Yeah. I think it's an it is an inevitability, like we if the science is correct right now, like we will abandon cities, you know, but it's like to me that's that's part of it. It's like, yes, we should we need to retreat. Let's do it deliberately.

**Felix:** Right, yeah, let’s do it deliberately in a way that’s equitable, and preserves our humanity. Right? Like, let’s not do the individual bomb shelter strategy

**Justine:** Totally

**Felix:** And Annalee was pretty optimistic. Here they are reading a passage from their book,

**Annalee:** Though nearly every generation believes it's living through the end times. There has never been a great civilizational collapse from which we didn't return. Instead, there has been only the long road of transformation. Each generation handing off its unfinished projects to the next.

I do think that humans are going to survive this anthropogenic climate change. I don't think it's going to be fun for everyone. But we're not going to wink out of existence. We're just going to change. The one thing that I really want to emphasize is that when civilizations are going through really tough transformations like the ones that we're facing right now, when we think about urban abandonment and people worry about like whether their city is going to become, you know, one of these lost cities, keep in mind that the historic hit that keep in mind that the historical examples that I looked at, each of these cities was menaced by some kind of environmental challenge, and it was combined with political instability. And that's really the one two punch that you have to worry about. Cities can make it through incredibly tough environmental difficulties who went through a horrible drought that lasted for, you know, centuries possibly. And they made it through. They changed their diet. They changed the way they farmed and they made it. But later in their history, they had a lot of political problems combined with environmental problems. And that was really what seems to have precipitated the abandonment. And that's the pattern we see everywhere. So try to maintain a good, solid democratic political system or just a good, solid political system in the face of environmental adversity. I think that's one of the big lessons

**Justine:** Is meant to be encouraging.

**Annalee:** I'm just trying to say infrastructure plan. Yeah, actually, it is really true. When I hear about the infrastructure plan, I'm like, yes. This is like a thing that is actually going to help.

**Felix:** Thank you so much, Annalee, for joining us on Outside-in and talking to us about your book.

**Annalee:** Yeah. Thank you so much for having me. This is really fun.

**Justine:** That was Annalee Newitz, author of Four Lost Cities A Secret History of the Urban Age. If you read the book or enjoyed this conversation, we'd love to know what you think. You can email us. Our address is outside in at Nhpr.org.

**Felix:** Our next book club pick is Fuzz When Nature Breaks the Law by Mary Roach. It's an investigation into the unpredictable world where wildlife and humans meet.

**Justine:** So let us know if you have any questions you think we should ask. Mary Roach, get in touch. It's the same method you can email us or you can tag us on social media. We're at outside, in radio, on Twitter and Instagram. And you can also use the hashtag reading Outside-in.

**Felix:** Don't forget about the newsletter. You can sign yourself up for that at our website outside and radio nhpr.org.

**Justine:** This episode was produced by Felix Poon with me, Justine Paradise with support from Taylor Quimby and Jessica Hunt. Our executive producer is Erika Janik, who’s leaving us!!! I don’t know if I’m ever going to have another editor who’s an expert on the 19th century spiritualist movement, or… who wrote a whole book about apples! Or a boss who really believes so much in the people in her professional charge. We’ll really miss you, Erika.

Music came from Blue Dot Sessions. Our theme music is by Brake Master Cylinder. Don't forget we’re a production of a public radio station. So please consider donating to support the show. You can do that at outside in radio.

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