

Into the Headlines_ Episode 3: Strange Sickness

Speaker 1: (00.10) Are you ready for the end of life as we know it? Books, films, video games and TV programmes have been gearing us up for the decimation of the human race for decades but, the truth is often scarier than fiction. With the 'Last of Us' the latest show to provide a glimpse in a post-apocalyptic future, I'm taking you back to a dark time in our own history to see how disease has already shaped our lives. And in case you are worried, yes I will also be asking an expert if we really could all be wiped out by a rampaging fungus.

I'm Laura Grant, welcome to Into the Headlines.

Intro music: (00.45)

Speaker 1: (01.01) Episode 3 – Strange Sickness. Today I'm joined by research fellow Dr William Hepburn, and senior lecturer Dr Jackson Armstrong, both of the School of Divinity, History, Philosophy and Art History at the University of Aberdeen; and Dr Delma Childers, lecturer at the School of Medicine, Medical Sciences and Nutrition and expert in researching how fungi adapt to their hosts and cause infections. Welcome all.

Speaker 2: (01.28) Hello

Speaker 3: (01.29) Thank you

Speaker 4: (01.30) Thank you, good to be here.

Speaker 1: (01.32) William and Jackson, you are historians but you can also list gaming developer on your CVs because after many years immersed in the Aberdeen city archives, one particular period inspired you to come up with a really innovative way of bringing our local history to life. Tell me about it.

Speaker 2: (01.50) Well we've been working in one way or another with Aberdeen's fabulous archives for a decade now and a series of grants and projects investigating those records in all their richness for what they tell us about life, about law, about Scotland and its place in the wider world and so some really rich stories and themes coming through in those records which we were excited to explore ways to make available to really wide audiences beyond those who are interested academically in the material. William joined the project in 2016 and came in with lots of ideas around the potential for exploring game development and things progressed from there.

Speaker 3: (02.35) Yes, so on those projects we sought to find ways of engaging the public with our research and we were often having conversations about different ways to do that and one of the things I wanted to do was experiment with games so I did an event that as kind of based around an event for the audience and that led to us thinking what more can we do in this way and we got some funding and for a short fellowship I did about exploring the potential of video games as a medium for sharing these parts of history and these historical sources and that ultimately led on the Jackson and I forming a company and running a crowd funding campaign to raise money to fund a game called Strange Sickness which was based on some of the records within Aberdeen's medieval collections that tell us about occasions when towards the end of the 15th century and into the early 16th century when the council in Aberdeen was concerned that plague was going to come to the city and be a great danger and the measures they took to address that. And so we made a game about that and that's been a large part of what we've been doing for the past two to three years.

Speaker 1: (03.56) What does the game actually involve? What's the nature of it, what do players do?

Speaker 3: (04.01) So in the game you play a young councillor. The more senior councillors are not talking the issue of plague seriously and he at first needs to highlight why this is such a danger and then, from there, once they kind of accept that you have to go and find out about different ways of dealing with it, all of which is drawn from historical evidence, But in terms of the game what you are doing is you are talking to people, it's mainly a text driven game and we have art giving you the feel of being in the city in that period but its mainly text driven and you are talking to people, you are walking around the town, going to different locations, you are trying to come up with methods of fighting the plague in a few different scenarios that you end up in and you are collecting evidence to sort of back up those scenarios and then you are going before the council and you are presenting your case basically. So it's almost like an investigation but rather than investigating a murder you are investigating how to fight this deadly disease.

Speaker 2: (05.03) Could I comment as well about the fact that William and I are historians and one of the tremendously enriching elements of this whole process was collaborating with others. Katharine Neil, the game designer, we were so pleased to have her come on board on the Strange Sickness project and Alana Bell our illustrator, and it was wonderful to have that richness of expertise to lead us into the places where it was all new to us and a tremendous learning curve as historians in terms of what game development involves and we wouldn't be here without everything that Katharine and Alana brought to the project as well.

Speaker 1: (05.47) The illustrations are great, they really do kind of add a whole different element to it. On the surface it doesn't seem like a natural premise for a game but what kind of feedback are you getting from people, is it fun to play?

Speaker 3: (06.02) Yes we hope so, we hope so. It's probably going to appear to a particular type of game player like it's not going to give you the kind of dopamine hit of shooting aliens with virtual guns or something like that but I like to think of it as enjoyable to play in the sense that it's enjoyable to sit down with a book and cup of tea on a quiet afternoon and play through it in that way because there is a lot of reading involved in it, it's that kind of game. So it's not going to be for everyone but I think there is a kind of appeal if people are interested in the sort of specificity of the historical setting of it and the fact that we are drawing on our work on actual historical records that we're bringing into the game so I think that is appealing for a lot of people and just the kind of, I guess the quirkiness of that as a premise is, you know games have increasingly over the last couple of decades branched into more personal, or more specific kind of themes, as the tools for game development have become more accessible to more people so individuals for instance can make games about whatever they want whereas the big budget games need to have a mass appeal to a broad common denominator. So I think that the people who are more impressed by those sorts of indie games are likely to be the people who are going to be interested in our game.

Speaker 2: (07.34) And just to add, the extent to which a huge aspect I hope is there for those who are enjoying the game is those who are interested in Scottish records which have UNESCO designation and using this game as a way into understanding those records of the past in perhaps an unexpected way and those are people in Aberdeen exploring aspects of their own civic heritage or people from around the world who are coming to it through an interest in narrative games or indie games or historical games, it's I think really exciting to be able to bring these important historical records forward through the matter of game itself.

Speaker 4: (08.13) So the game, the way it's set up seems to lend itself quite nicely to translating into real life like walking tours of doing like the CluedUp events in Aberdeen where people walk around the town and act like CSI and try to investigate things in real time, have you thought about spreading the game out into that sort of scenario, to a more historical walking tour touristy-type game?

Speaker 3: (08.37) A hundred percent, yeah, I mean even before we did the games thing I was often thinking of public engagement more generally, thinking along those lines and there's a lot of interesting things being done with games in real world settings and we've been talking to people about potential projects to do things like that maybe in connection with exhibitions at Aberdeen Art Gallery and museums as way of bringing the exhibition out into the streets of the city and so on and linking it back and yes, having some sort of investigative narrative of some kind perhaps, or maybe vignettes, little stories at each of the locations that people could engage and interactions with characters that are either from Strange Sickness or new characters we develop for that but yes we are kind of in a sense while doing this we've been open to a vast array of potential future directions with game development, this is definitely one of them that we have looked at but we are also keen to also make maybe more games that are of more of a traditional nature that you would just play on your computer but yes we are open to everything and that is maybe our weakness sometimes, we need to focus on one thing rather than everything but yes, absolutely, it's a really good point and great to hear that's something you are interested in and have done things like that and it's useful feedback for us. But we're also, more broadly interested in the potential games, not just even in our historical research or in history generally but as tools for academics to use more broadly, either as public engagement or what academics can contribute to that industry I think in terms of the knowledge and subjects and richness that they can bring to the world and themes of games.

Speaker 1: (10.31) Strange Sickness was nominated for a Scottish BAFTA and a Scottish Games Award at the end of last year. Why do you think it's been such a hit? What is it about this period in our history that appeals to us?

Speaker 3: (10.44) I think, plague is kind of, we chose it from the many themes covered in the records because it is a moment of quite dramatic crisis I suppose whereas a lot of the stuff we deal with is very interesting but its more everyday activities you know, people buying and selling things and so on, so that stood out to us and we think that is part of the appeal. It is one of kind of hooks of the Middle Ages I suppose, if people know anything about what happened in the medieval period they are likely to know something about plague. But in terms of the appeal, why did it get nominated for a BAFTA, I don't know, I think it did stand out, the idea that this was a game that was rooted, was led by historians rather than the other way around. It started with historians and we went out and found people with game development skills that could help us and I think that story of the games creation was in itself quite appealing. Like I think there's some people who are as much interested in that story as they are in actually playing the game and supporting the..yes, just this interest in supporting this combination of disciplines, I think that was part of the appeal.

Speaker 2: (11.56) Just to add to that, how exciting it was to have those recognitions and so surreal. A tremendous honour and I think it also speaks perhaps to the really exciting state of the games industry in Scotland today and it's an opportunity to showcase some of the diversity that is coming forth in terms of the topics and the materials and the people who are

becoming involved in making games in Scotland and it was really nice to have some moments to become involved in that.

Speaker 1: (12.32) You mentioned that it was about touching on the real stories from this period in history, what were some of the measures that were brought in during the plague? How did people's daily lives change?

Speaker 3: (12.42) Yes, so a lot of the measures were actually strikingly similar to some of what we've gone through over the last few years with covid, although this game actually, the genesis of this game was before covid and then just when the pandemic started it kind of took on a new resonance I suppose within that context and a lot of the things that people did, so there were restrictions on movement over the region. Aberdeen has quite a large hinterland over the north-east and it was kind of the point at which people were to bring their goods to sell them so there were measures say within a certain border in the countryside around Aberdeen people couldn't move outside of that without being checked basically. There were checks at the city gates and guards told to check people coming in so they weren't infected people. People who were suspected of having infections were quarantined, like locked down in their homes basically for a certain number of days, you know and measures about people having to bring them food and basically have to leave it for them and they had to be shut away. There was even time when a part of the town was locked down and actually quite interestingly there is a sort of gap in the records for this period as if the administration wasn't able to operate in a normal way because they'd shut down that area of the town. And there's loads more of that so it was very resonant of what we were going through. The plague was of course a very different disease and much more deadly than covid-19 but in terms of some of the effects on society and the way that you see this, the way that it manifests I suppose, you can't see this disease but you see all the ways that we respond to it, you see the quiet streets and the people being scared to get too close to other people and kind of thing that we were all dealing with in terms of how do we operate as a society while we are trying to maintain social distance and all these things. So, yes, different in many ways but also strikingly resonant of what we were experiencing at that time.

Speaker 1: (14.56) Fear must have been rampant across the community and that degradation of societal norms is something we see portrayed quite a lot in books and programmes of this ilk. How did fear influence how people were living?

Speaker 3: (15.09) So this is a really interesting question and one where I think we had to draw a bit more on I suppose our imagination in the sense that the records they don't address this sort of personal accounts of people's feelings about things. You can see the fear in it just because of the intensity and the detail in the legislative measures they are taking to try and deal with it, that in itself is an expression of fear but in terms of understanding the personal emotion behind that it was up to the imaginer a little bit and I suppose but it helped that we were feeling similar fears at that time and just the sense that you are in your house, this kind of invisible threat that can be everywhere and you don't know where – it must have been even more scary at this time with a more deadly disease and in terms of the information you know they are very different information environments, we could all watch the news or check the news on our phones to see what was going on here but you'd have had to depend on news or messages that people were bringing from other places and maybe much more difficult to get information in some ways from the wider world. I think, you can imagine, we don't necessarily see that explicitly in the records but you could certainly imagine it there in the background of all this local government measures being taken to combat the disease.

Speaker 2: (16.37) If I could just add, one of the things that struck us as the game came together was the extent to which it was a game in dealing with fear. It's a game about town government and governmental responses to social threat and fear. And as William sometimes expresses it in terms of inspirations for the game, on the one hand there was Edgar Allan Poe's poem 'The Masque of the Red Death' but thinking in 2020 of the viral video of the Handforth Parish Council and so thinking about the ways in which we could explore some of the themes in local government even in a playful and irreverent way, handling quite a serious topic, but doing so in a way that is exploring how do we govern ourselves and what are the choices that our leaders are in a position to have to make.

Speaker 3: (17.31) And just to expand on that, the ultimate – not to spoil the story of the game – but the ultimate journey that the young councillor that you play in the game goes on, initially his ambitions are to go out into the wider world and escape his home town and go and do bigger things, as it often is for people in their early twenties, but he comes to realise the changes he can effect on the world through local government are actually very important and there's a lot he can do there and that's kind of like...there's a funny side to local government as the Handforth Parish Council shows but also we wanted to highlight that we should be paying attention to what happens at this level. The Aberdeen records are a hugely valuable source of history and this is where a lot of important things happened rather than just in the King's castles and so on.

Speaker 1: (18.27) Speaking of paying attention to things, the plague is one of the deadliest diseases in human history. Bacterial infections and viruses like smallpox and ebola have long been a cause of fear in society but one of the things we've been less afraid of to date is fungus. With the Last of Us turning the finger of suspicion towards fungal infections and the potential damage they can cause, the question really has to be should we be paying them more attention than we have been? Delma, you're a medical mycologist - tell us, how bad can fungal diseases be?

Speaker 4: (19.00) So I've got a clear conflict of interest here in that of course we should be paying more attention to these things but scientifically speaking as different as fungi are to viruses or bacteria, they can be just as good for us or just as bad for us as anything else, what's been really great is that just recently we've started to see more uptick in recognising fungi, not just through something like The Last of Us, which is fantastic in terms of talking about serious fungal infections, but last year the WHO – the World Health Organisation – finally published a list of priority fungal pathogens so we can think of this as the 'most wanted list', the 19 fungi that really need a critical response soon in terms of research and investment and my career has been spent working on two of these, so it's really good to see this uptick in response to how severe fungal infections can be.

Speaker 1: (19.50) How do they generally spread? Is it similar to viruses and bacteria or do they require something different?

Speaker 4: (19.55) The vast majority are very different. So most of us are born with fungi already in our system, just like we already have bacteria in our system. So the two fungi I work on are *Candida albicans* and *Candida glabrata*, these are in our mouths, there in our guts and for most of us they don't cause a problem for the majority of our lives. We only become really sick if we're in hospital a long time that they start to rear their heads and cause some major infection and life threatening disease but we've also got environmental fungi, there's fungi in the soil, there's fungi in the air, you're breathing in spores every day, so for most of these fungi the same rules apply, if you're not otherwise healthy, if you have no underlying health conditions you don't usually have much to worry about with a few exceptions. But we do have some new fungi hitting the scene which do seem to transmit

through hospital settings, so they can transmit on coats and trolleys and things like that but they are the exception rather than the rule usually.

Speaker 1: (20.55) How old are fungi?

Speaker 4: (20.58) This is a really fun question because the fossil evidence for this is terrible, fungi don't make good fossils, but we think there's evidence of fungi in plant fossil records from about five hundred million year ago and there's a fantastic theory about fungi possibly being one of the things that contributed to the wiping out of the dinosaurs after the asteroid impact.

Speaker 1: (21.21) You're going to have to tell me more.

Speaker 4: (21.23) Of course, I'm happy to elaborate on that one.

Speaker 1: (21.25) Briefly, tell me more.

Speaker 3: (21.26) <Laughs>

Speaker 4: (21.27) I'm not saying I buy this idea but the idea goes like this. The asteroid hits, it kicks up a ton of dust into the atmosphere and this is going to block sunlight from plants, plants start to die or start to become susceptible to fungal infection so you have this fungal bloom that then causes massive mayhem in terms of the number of spores that dinosaurs are breathing in and causing them to keel over. That's the idea in a nutshell although Alturo Castadevall might correct me later.

Speaker 1: (21.55) It sounds like a potential game for you to tackle next.

Speaker 3: (21.58) <Laughs>

Speaker 2: (22.00) Sounds exciting. Let's talk. <Laughs>

Speaker 1: (22.03) Do you think fungi get the respect that they are due, compared to – I'm going to describe them as the more flashy – viruses out there? The more attention-grabbing viruses?

Speaker 4: (22.13) In terms of being an infectious agent no I don't think they get the respect that they deserve. So fungi cause more infections per year than malaria. If I talk to my nieces, they'll know what malaria is but they won't really know much about fungal infection. We get maybe a penny for every dollar that's spent on research in terms of fungal diseases, or in terms of infectious diseases rather. Sorry, for fungi we get a penny out of every dollar.

Speaker 1: (22.40) Which is clearly not nearly enough considering how many are out there.

Speaker 4: (22.44) Clearly not nearly enough but it's also a more modern problem, this is a problem of our own making, in a way, because what's happening is we've got folks who are going on to cancer chemotherapy and other treatments that are extending their lives fantastically but now it's not necessarily the cancer that's killing them, it's the fungal disease that they're having now.

Speaker 1: (23.05) The fungus in the game and the programme, was originally transmitted through food. Is that common?

Speaker 4: (23.12) No, it's not very common. So Centres for Disease Control have a nice study on this where they looked at food and food supplements and it's very rare. They found maybe a handful of cases where this was suspected and the folks that suffered most were those that had underlying health conditions, so it's not very common. What's more common

and historically quite relevant is food contaminated by fungal chemicals so fungal metabolites, things like ergot which is produced by a fungus called Claviceps, can cause psychosis and hallucinations and it was thought to be one of the things that may have started the Salem witch trials.

Speaker 1: (23.50) But it's a theory only?

Speaker 4: (23.51) It's a theory only. There's no proof that this is what happened.

Speaker 1: (23.54) I suppose the big money question is, is it possible that a scenario like in 'The Last of Us' where a vast swathe of the population is infected so rapidly could ever happen?

Speaker 4: (24.05) Well I guess if we go with Alturo's idea about a post-asteroid fungal bloom killing dinosaurs that might be a way to quickly cause a severe fungal disease but currently the odds are quite slim to see something really go around the world as fast as what you see in The Last of Us. You think back to covid-19, that had a couple of months really in terms of the set up before it really became a major problem with lockdowns seen around the world.

Speaker 1: (24.32) Fungi are evolving though, are they getting more dangerous?

Speaker 4: (24.38) It's a balance here. So part of it is we're becoming more susceptible to fungal diseases by prolonging our lifespan through medical treatment. Which is fantastic for life, but we also have to think about quality of life and susceptibility to fungi. So I wouldn't say those fungi-causing diseases are getting more dangerous but there are fungi that are starting to cause disease that we hadn't described twenty years ago, that are thought to possibly be causing disease because they've learned to grow at our body temperature. So the vast majority, over ninety percent of fungi can't survive at our body temperature but we're starting to see more fungi surviving at these high temperatures and there's a thought that that might be due to climate change teaching fungi to tolerate higher temperatures.

Speaker 1: (25.21) Well okay, that seems like a suitable mic drop moment for us to end on.

Speaker 4: (25.25) <Laughs>

Speaker 3: (25.25) Yeah <Laughs>

Speaker 1: (25.27) Thanks all of you for sharing your thoughts with me.

Speaker 4: (25.30) Thank you

Speaker 3: (25.31) Thank you

Speaker 2: (25.32) We've enjoyed making, making this game and we want to make more.

Speaker 4: (25.36) Yeah, if you want to do a fungal infectious disease game then hit us up over in the IMS.

Speaker 3: (25.41) Sounds good. Sounds good <Laughs>

Speaker 2: (25.42) Sounds like we need a coffee.

Speaker 1: (25.47) We'll need to get you some funding.

Speaker 3: (25.48) <Laughs>

Speaker 1: (25.49) Well thank you all, and thanks also to you out there for listening. All being well I will be back soon with another look at the stories behind the headlines but if you

just can't wait, you know what to do, visit [abdn.ac.uk slash news](http://abdn.ac.uk/news) to find all the latest updates from the University of Aberdeen.

Outro music