Transcript of
"Histories of Science in Africa"
s1e2: Kalala Ngalamulume

Episode Summary:

In this episode guest Kalala Ngalamulume discusses his research on epidemics, public health, and urban politics in Francophone Africa. At the forefront of our conversation are his longstanding interests in both state and community responses to emerging health crises. His observations range in time from the fifteenth century to the present, and across several continents. In particular, he draws historical parallels between past outbreaks of disease and the current COVID-19 pandemic.

0:16

Conor Wilkinson (CW): You're listening to *Histories of Science in Africa*, a podcast supported by the Center for Science and Society at Columbia University. Our guest for episode number two is Kalala Ngalamulume, professor of Africana studies and history at Bryn Mawr College, where he also serves as co-director of Health Studies. Professor Ngalamulume specializes in the History of health and disease in West Africa. His 2012 book, *Colonial Pathologies, Environment, and Western Medicine in Saint-Louis-du-Senegal* explores how French medical authorities and West African city-dwellers responded to continual re-emergences of deadly epidemic diseases and environmental contamination. The backdrop for our conversation with Professor Ngalamulume is the second chapter of his book which looks closely at the Great Yellow Fever epidemics that struck Senegal in the last third of the nineteenth century.

1:05

Jessie Cohen (JC): So that our listeners are on the same page, could you give us a brief overview of your work and in particular, the book chapter that we read for today?

1:13

Kalala Ngalamulume (KN): As a historian of empire, my work focuses on what scholars have called the colonization of the body, in order to optimize the health and productivity of the population. So, I look at the ways the state tries to regulate the population in dealing with epidemics. And I have focused on three major epidemics: yellow fever, cholera, and the bubonic plague. But I have also paid attention to allergies, for example, the seasonal allergies in summer months. It is mostly the epidemics but also allergies. And then in the winter – I mean, what they call the "cold season," which starts in January until April – you know, there are other allergies too. So I pay attention to all these conditions. But so far I have focused on the major epidemics, and how, through regulation, the state has used hygiene, the building codes, urban planning in dealing with the disease; and also looking at what they call "deviant cases," you know, the "diseased bodies" (the sexually diseased, the insane) as well as the routine health care in between epidemics; the provision of health care; the access to the care; and also dealing with vaccination.

That is one aspect: looking at the state operation. But I also look at the responses and the initiatives of the colonized. Not only how local healers and ritual experts responded. You know, in the archives they are identified as the enemies: those who prevent the population from going forward for health, going to the hospital, going to the dispensary, to the health center. So they are kind of the enemy. Muslim clerics, healers, midwives, all of them are engaged in this resistance – we can call that resistance. But for the rest of the population, we look at their attitude towards the scientific medicine, or biomedicine. Some of them accept it, some of them are hesitant because, based on their own observation – for example, they see

that people who were vaccinated against smallpox, some of them later on caught the disease again, so you have vaccine hesitancy based on observation – not on cultural attitude, but just on their own observation. So it ranges. The response ranges from resistance to selective acceptance of scientific medicine.

4:00

Now the first chapter is dealing with the city because the city is the unit of analysis. And when we talk about epidemics, we talk about cities, which means concentration of people. This is where pathogens – human pathogens – can spread easily because of high concentration of the population. We need to understand the growth of the city, how it became the way it is, to understand the layout of the city and also understanding the diverse categories of people who live in the city. The special layout tells us something about the socio-economic factors.

Saint-Louis started as a small fishing village in the seventeenth century and it developed into a trading center near the mouth of the Senegal River. And it attracted merchants from Bordeaux, Marseilles, southern France. And it developed into an international kind of port linking southern France to West Africa and to the Caribbean. And it will become the capital of Senegal. Since many of the Europeans who came were single men, they interacted with local women, contracted marriages and out of those unions emerged a community of *métis*, or mixed-race people, who will play an important role in politics, liberal professionals, and economic activities. Given also the fact that France had selected those four cities on the coastal region – Saint-Louis, Dakar, Gorée, Rufisque – they became communes, meaning that they were electing their own municipal council and mayors. And so we see a development of vibrant civic

culture there, which makes the situation very complex in the ways in which the authorities will be dealing with the people who – some of them – born there in the port cities will be nationals, will have civic rights, electoral rights, and so on.

6:08

CW: What was the impetus for you deciding to study epidemics and the provision of health care, both from a state-centered focus and also from a bottom-up social history perspective? Was it based on prior experience that you've had in related fields or interests that you've cultivated? Or perhaps the influence of mentors? Could you talk a bit more about why you were drawn to thinking about health care and disease?

6:29

KN: Yes, there are two things. One is the personal observations. I lived in the Congo (DR), where I grew up and I observed the burden of disease, around you know infectious diseases, chronic illnesses, environmental factors affecting the health. And I also observed how weak the state was in providing health care, in building the medical infrastructure. And then when I looked at the rhetoric, studying the colonial empire—I saw that medicine was one of the, in the medical discourse, in the colonial discourse—medicine was one of the justifications of their achievement. They explained that one of the aspects of the civilizing mission, besides education and building infrastructure and so on, was the fight against disease, the burden of disease.

And I became interested in looking at the ways in which … going beyond the broad policy statement to look at the practice. How, on the ground, did they actually achieve that goal? In my graduate school, then, I became interested—when you talk about hegemony—so I was not interested in other aspects of hegemony, I was interested in health and hegemony to see how health contributed to expanding French influence in the colony. And I have not had the chance to look at the Belgian experience in the Congo yet concerning health, but there are similarities from the work of other scholars in dealing with sleeping sickness, malaria, and so on.

8:18

JC: Following up on that, can you talk a little bit more about the roles/discourses of health and medicine specifically played in the colonial policy in Saint-Louis? And elsewhere if you'd like. And why this particular discourse is seen as such an effective tool?

KN: That's a good question. One aspect of urban life, one aspect of health and medicine, is that epidemics are allowing us to consider a number of factors. One is the social basis of disease. For example, when you look at urban areas—urban areas are places where diseases transmit easily. And that will be the focus of the colonial administration: dealing with a disease will become an important part of conducting the colonizing process. And we see in a city—the city allows us also, or epidemics in general, allows us to understand health inequalities that are based on the lines of division within the urban society: how people can access health care and how diseases or outbreaks force the administration to transform, to try to transform, physically and operationally, the structure of the city in order to benefit all the residents. And so, the colonial discourse—you cannot run a colonial city when you face all these diseases. So disease

is present there as seasons are changing. You are faced with the spread of human pathogens and it affects all operations: we cannot undertake military campaigns without looking at how disease will affect the health of the soldiers, you cannot plan on economic transformation without looking at the health of the workers, and you have to deal with all these allergies so that the epidemics, and not so the chronic illnesses, but the epidemics became central to the colonial discourse and to the missionary discourse. And they have to deal with those issues until we see the development of the germ theory—when we move from miasma to the germ theory. Then that understanding will help change practices around, alleviate, and change also the discourse.

10:43

CW: Especially on this last point that you've raised—the switch towards germ theory in the twentieth century—we have a hypothetical question we'd like to ask you: If you sent a French colonial doctor to Senegal in the 1860s versus say, sending a French colonial doctor in the 1920s, one of the things that becomes very clear in your chapter is that their understanding of epidemiology and how germs spread has, in some sense, been revolutionized. And yet, there are also some continuities or similarities that one could establish between these two eras, in terms of colonial health practices or discourses. Could you talk a bit about what would be different between these two eras and what also might be the same or similar?

11:20

KN: Yes, that is a good question. Let's talk about the doctor who arrives there in 1860. The medical knowledge the doctor has and at the time, many of them—all of them—are navy doctors because until the 1890s, state medicine is run by military/navy doctors. It will become

civilian medicine only after 1897. And so, when these doctors arrive in 1860, they are equipped with miasmatic theory, which states that disease is caused by some kind of vapor that is underground or that is in the swamp or that is in the cemeteries—when these tombs open, they release some vapor that they call miasma. And then, when you inhale that vapor, then you get sick. You have also how it spread: it spread through contact from those who got sick and died, and the objects that were in contact with them and the houses where they lived. And so, it is that theory of miasma that framed their understanding of disease etiology.

The second thing is acclimatization. Since 1857, when [Charles] Boudin wrote his treatise of medical geography, he emphasized the importance of climate in generating disease conditions, in affecting the health of Europeans. So you have the climate. You have the heat because we are talking about the tropics, and the heat was seen as being a factor of death … they described it as affecting all the organs. And so that if you stay more than two/three years there, you are likely to experience what they call the tropical anemia. So, we have the climatic determinism. But there is also the possibility for acclimatization, which means—it is not just for people, but also for plants—it is possible that various organisms adapt differently to the environment. For example, those who just arrived are more vulnerable than those who have survived their first summer—what they call in Senegal, Hivernage, because it is the season when we have all these epidemics and so on. And the heat. So, we have behind the theory of acclimatization, we have also the notion of seasoning: you survived a number of years, then you are seasoned, which means your body has adapted to the tropical environment.

But you are not invulnerable to epidemics. It means you may have caught yellow fever and survived, but you can still get sick and die. But you are better than the first-comers. And so

these are the ideas that are incorporated into the epidemiology of disease for the doctor who comes. We have miasmatic theory and we have the environmental aspect of it—you know, the heat, tropical climate, and so on. So, when they arrive in Saint-Louis in 1860, they see water everywhere because not only the river but Saint-Louis is on an island, in the middle of the Senegal River. But around Saint-Louis we have areas of standing water. They look at the local population, those who have lived there, the Africans, they see them since they grew up there, they have somehow developed immunity. That has implications, in terms of medical care; it means if we have limited resources, you will need to focus on the health, to protect the health of the Europeans; the soldiers, the European populace in general, and then the Africans who are associated with them; clerks, interpreters, and so on … secretaries, messengers. Even if they are immune, according to this understanding, they can still transmit the pathogens to the Europeans, which means you take care of those working with you and less resources will then be devoted to the rest of the population because when you think that they are immune, you're not in a hurry to do that.

What you can do is to make sure that there's separation and these ideas will inspire initiatives to separate urban residential segregation. And we'll see that in the forced removals of people, especially the urban poor from the center of the city, because they are blaming them for—the authorities blame them for deteriorating the urban environment, through their lack of hygiene, by throwing garbage elsewhere, and so on. And it will be—we see that response to malaria, for example, in Freetown, in Sierra Leone, you will see the creation of hill stations. The hill station on the hill, because the idea is that the miasma, if you live at the ground level of the sea level, you're likely to catch miasma, but if you live on a hill, then the wind will prevent

miasma from reaching the top of the hill. And so we'd see them erecting new constructions, new houses on the hill. But they fail to convince, especially merchants, that it was a good idea to go there—even if a railroad, a four mile railroad, was built to reach there—but merchants refuse to live downtown, to go stay there, because it is far away from their store houses. And we will see that also in other epidemics. In the 1901 bubonic plague in Cape Town and in Durban, we see how Africans are being removed forcefully. The removal is wanted on social grounds, but epidemics will provide the most important argument for that segregation, residential segregation.

17:58

Now, in 1920, the doctors who arrived there are already—by 1901, the germ theory has gained momentum following the work done on yellow fever in Cuba / Veracruz, Mexico, where it was clear that—they confirmed the mosquito theory. It was already defined in the 1890s but then it will be confirmed that the mosquito is the key. The germ theory indicated that diseases—from the 1880s on it was clear that all these diseases act as agent micro-organisms, so that we are not looking for miasma—it is the microbe, the parasite. But they still see that if before—the *indigènes*, as they call them, the local population, the *indigènes*—if they had the possibility of carrying miasma on their clothes and so on, now that we know that the disease is caused by these micro-organisms, they still have those!

So, we have a kind of continuity in the perception that if it is a micro-organism, they have them, and so that we still need to separate them. And in the new cities—in Saint-Louis it was difficult because this is an old city and also given the question of citizenship and so on—but for the new cities like Conakry in Guinea and other cities, Brazzaville, and so on, they will be

built on the basis of racial separation, so that you don't have to face the kind of mixing. You can mix at the workplace, but not in terms of residential area, so that the doctor is coming with a better understanding of the disease etiology, in terms of germs. But they still associate the Africans with the germs and the germs with Africans.

We see that with bubonic plague in 1901 in Cape Town. We see that in Dakar in 1914 with the bubonic plague when it was decided just to remove all the Africans from the plateau. And because of political implications, that operation will not succeed. It will be only—out of 38,000 they wanted to remove—only 8,000 or so were removed but the rest stayed because these were also voters. So you have political implications for municipal elections for the election of the deputy to represent Senegal, in French parliament. And so, we have continuity and change; the changes in the epidemiology of the disease and the continuity of the perceptions. It is also based on social practices, on cultural differences. But the medicine will provide the best, the most important, argument for maintaining/creating that distance, geographical distance.

21:01

JC: I wanted to kind of come back to the idea that you mentioned before about selective acceptance of biomedical interventions, particularly around epidemics, because it's something that we see a lot in the literature. Local populations pick and choose when they want to cooperate and have their own methods of resistance to the biomedical interventions, as well as colonial power more broadly. So I'm wondering if you could talk about change over time, and how you think local populations' perceptions of the disease and colonial approaches to the

epidemic control changed over time, as well as if the methods of resistance change over time … as the colonial state grew, did they feel they had more or less ability to challenge what they were doing?

21:47

KN: The first thing that I would like to qualify is the term 'resistance' is used by doctors, by the colonial officials. But when you look at the reality, we will not talk about resistance across the board. Those who resist—when you look at the disease categories, biomedicine looks at natural diseases, and they look at man-made disease, like environmental situations and so on—but when you look at the categories used by the Africans, you have also natural diseases. There's somebody waking up in the morning with a headache: that is part of natural disease. And the remedies are plants, roots, leaves, and so on. So from that perspective, both medicines accept each other, have the same approach. But then you have, in the Africans' category, you have also the disease of man. So the first one, a natural disease is a disease of God. That's how they see it. That's natural. But then you have disease of man or woman—disease of "Man" in broad category—that is the disease that a person gets because of the breaking of the taboos. The taboos are linked to some practices. For example, if you are a merchant, you are a trader in Senegal, and you go to the Senegal River and you are dealing in gum or other commodities, you take canoes to go up the river looking for these commodities, and you bring them to sell them. But you need protection as you go. And the protection is in terms of charms—it can be bracelets, it can be necklaces—which means empowered object,

that you were on your “lucky charms,” so that you will be safe, your canoe will not experience accident, and so on. So, they believe in that kind of supernatural protection. But when you are given those potent objects, they come also with proscriptions, which means—I just want to give just a simple example: never eat eggs.

Because the egg may weaken that power. So, if you, in the process of trading, you eat eggs, then you have broken a taboo, and then you could get sick. That is the disease of “Man.” It is because of your own recklessness that you have caused this. But we have also a third category that scientific medicine doesn't have, which is what they call disease of spirit. For example, if we don't offer libations—because the ancestors are looked at as being intermediaries between those who went before and the living, you need to offer them libations from time to time and so on to gain their protection. So if you don't in your daily life, you don't follow those proscriptions, then bad things may happen, they may not continue to protect you. But it can be also that somebody gets sick and natural remedies can't help that person. And then a diviner may find that, “Okay, actually, that person is called to become a healer.” So only if she or he accept that calling that they can be healed. In biomedicine, you don’t have those two other categories: disease of “Man” and disease of spirit. That understanding affects the Africans’ approach to biomedicine.

For example, somebody's sick, they can start with the roots and so on because the assumption is that it is natural. If it doesn't work, then they can look for diviners to see if there's something else—if there is another—if it is a disease of “Man” or disease of God. And after that, then they can go to the Western-based hospital. Or they can start with, in their itinerary, they can start with going to a doctor's office, if it doesn't work, then they go to the healers. So,

it is not automatic, it depends on the situation and on the cases. When we talk in the archives—medical discourse emphasizes "resistance"—we need to take it with caution. Their attitude is linked to their perception of the effectiveness, even of the biomedicine, it depends on the access to it. And I will give another example: the authorities created in addition to the military hospital in the late 1860s, they created a civilian hospital. But the location of that hospital was on an ancient cemetery. And automatically, people will not go there, knowing that that is a place of the cemetery, given their cultural sensitivity to a place. So the hospital becomes a place where you go to die, because you have the spirits of the disease. And that can help also explain the reluctance to go.

Women may not accept to go to give birth in hospital, because there they find only men, you see, in those years, in the second half of 19th century, and in the beginning of 20th century. So the fact that we have the presence of men, these military doctors, even after the civilian doctors are present. But a Muslim woman will not just go and face a man, even a Black man, a Black doctor—no, it must be a woman, at least a woman nurse should be there. So these are aspects in early medical practice that explain why people will not show up there when they are sick, because a woman will not go to see a man who is there, let herself being touched by that man, even if that man is a doctor.

Later on, by 1910, doctors will understand that actually, we need colonial intermediaries, we need the middlemen/women who can mediate that relationship, not just being interpreters, but cultural interpreters. And you need the presence of women also there. And another example: when we talk about smallpox vaccination, the success rate of smallpox vaccination was 66%, which is fine. But people observed that those who were vaccinated, some

of the people who are vaccinated, got sick later on. And so that prevented them from actually accepting the vaccine, because they saw that you're not actually protected fully, but they didn't understand the questions of relative immunity or the compromised immune system.

But they had also, before the Europeans, they had variolation, which was, you take—you make an incision on the arm, you take life matters, you transfer them, the person may get sick, but if they don't get sick, then they are protected. So that was the early forms of vaccine, if you can say, that spread in the Muslim world, and Muslims going to Mecca in pilgrimage to learn that. So it was practiced. And then when the biomedicine vaccine, smallpox vaccine arrives, then they observed the results. And when they saw this wasn't 100% protection, then you have hesitancy. That's why I say: selective acceptance. Biomedicine was great concerning eye surgery, for example, for cataract so that people will go—even Muslim clerics will go for getting that because they saw the success.

28:58

JC: Your part about vaccines is reminding me of Elisha Renne's book on the politics of polio in northern Nigeria, because she also mentions this hesitancy towards vaccines because if it's not 100% effective, and the community already has its own means of dealing with this disease, then why?

KN: Yes, and also, you have political implications. For example, in 2001, with the frictions between Muslims in northern Nigeria, were opposed for example to the Iraq war. When the vaccine came, polio vaccine came, they thought if they protested the war, then the vaccine will be sent to kill them. So, we have conspiracy theories there.

CW: I have a ton of notes here just on what we've been discussing and things that you've been bringing up. I was wanting to circle back to—you really drove home the idea that these advances in whether it was epidemiology or other medical sciences, things like evolutionary biology (1850s onwards) and I know that, you know, the watermark in World History for this would be Darwin and other European-based scientists. But it remained fascinating to think about these colonial experts, somewhat rapidly I guess, came to realize that it wasn't these miasmas and that it was actually microorganisms that are the vectors for diseases. And yet, certain associations remain. If it is microorganisms, as you said, it must be the *indigènes* that remained the hosts or that remain unhygienic … are still considered the problem. This is something that strikes me, especially in terms of the history of Africa, and one of the main reasons for doing the podcast is to try and bring Africa into a sort of global world history of science. So often, if you take a general history of science class at the undergraduate level, the odds that you're going to get some content from Africa is minuscule, probably. But I think that studies like yours, and the work that you do shows—provides very detailed and rich case studies—just how integral other parts of the world besides the West have been to this history of science and of medicine.

It's a question about expertise. I'm sure in all of the archival documents that you looked at, and the reports, in large part, you would have local informants/interlocutors being written out of the narrative of the successes or the advances that colonial health practitioners are making. But in reality, we know that their testimonies, their information for—whether it's people out in the field, people doing some sort of study—that their knowledge of local environments, of local cultural practices, whether it might be plant matter, or knowledge about

water systems, that actually is an under-acknowledged, if not unacknowledged aspect of what's going on here. So I wondered if you could talk a bit about the different layers of expertise that are part of this story, and what gets labeled expertise? Western colonial scientific practitioners, and in our post-colonial world, this remains the case: the experts and what counts as expertise is particularly techno scientific understandings of how these things work. And yet if you go to different forest communities in Central and Eastern Africa, to this day, there are big pharmaceutical companies that are tapping the expertise locally of people who live in forested regions, and who have deep knowledge about plants, and how to mix them, how to extract what's useful from them. They don't have lab settings to tell you the toxicity or the curative properties necessarily of the matter. But they have knowledge that is then exploited and used to people's benefit, predominantly in places that are not where the expertise comes from. I wondered if you could talk a bit about those different layers of expertise, what gets counted as expertise, and how a study like yours can interrupt/inform/extend our understanding of global history of science and medicine?

33:12

KN: When you go into the archives, you enter into a world where knowledge is produced under specific circumstances and that knowledge can be contested, but the way it is—expertise is associated with formal education, you go to school, you get a degree in medicine, in biology, and so on. And that degree gives you the authority. And for example, we started with the French doctors who arrived—they had degrees from Faculty of Medicine in various places in France, and they arrived. They have what sociologist Pierre Bourdieu called "scientific capital," which means they have the authority to talk about medicine. And those

among the colonized, who didn't go through the same training, their knowledge is dismissed. That's the case of local healers, because they tend to emphasize the ritual aspect of healing: all the ceremonies, dancing and trance, and so on. But that is just one aspect. But the basis, the material basis of healing, these healing traditions, that's the leaves and the roots and the plants. And so they dismiss them because they don't have that degree. So we are dealing with what we can call "the tyranny of experts," those who have something to say (doctors). And we see them dominating the health boards. They are listened to. But let's look at the local knowledge first. For example in Senegal—and again to join Jessie's question concerning selective acceptance in the second half of the 19th century—somebody who had a broken bone will not go to the doctor's office because the local knowledge can heal that. They know how to deal with it: stabilize the leg, they put some sand on top of it, they add things and so on, they expose it to heat. And they put things on the leg, some medicine and so on. The leg can stay that way for I don't know how many days, how many weeks or days. And then after that the bone will reconnect and will heal.

A second thing: somebody bitten by a snake, they have knowledge of anti-venom. And so they will use it, local knowledge and there the knowledge of the plants as a result of experimentation over centuries. They knew that these types of plants, if you make a tea out of these leaves, they can fight intestine worms. So they knew. In cases, for example, a village being affected by—they saw some people who are affected by sleeping sickness. And they link it, they observed that these people have been going to this forest. And if you go there, you get bitten by some fleas, some mosquitoes. And if you are bitten by those fleas, you are likely to develop these sicknesses. They don't have a treatment against it, the only measure they will

take will be not to go there, to maybe to move the village away from that space. And whenever they go and enter into the forest, if they identify those fleas, they know that this is not a good place—or they can use fire and so on to try to get rid of. So we have this local knowledge that they had experimented and they knew that for those cases, you don't have to go to the medical office. But there are other issues for which they will go. So local knowledge has been, as you said, it has been neglected.

But going back to Senegal in the 1870s. Even if some doctors like Doctor Bérenger-Féraud who arrived with that expertise—scientific medicine—of the scientific capital of biomedicine. He arrived in Senegal, but he was open-minded enough to go to the market and see what roots and plants and leaves that the local people were selling to deal with specific diseases. So he inventoried those, and he wrote an article that was published in the *Moniteur du Sénégal* where he made a list of these plants and the disease they treated. And also he gave a scientific name of those plants. So that is an isolated case of a Western doctor who was open-minded about local knowledge. But this is a unique case; others were not with this, they just dismissed it. They dismissed local knowledge. And going into the post-colonial situation we see that, you know, pharmaceutical companies are now interested in this kind of local knowledge. They go and inventory these plants and roots and see their healing power.

And a good example is South Africa. Maybe two decades ago, the San people, the hunter-gatherers, when they go hunting in the Kalahari Desert, they may go for days, there is no food to eat. So, they may find some berries here and there. But there is a plant—I forgot its scientific name—when you open it, it looks like an apple inside. What they do: you cut it and then you suck it and it suppresses hunger. You can go for days. But this is an invention of the

San, the Khoisan, and the debates in South Africa were about providing them with—because they've invented, this is their invention—so, you need to share profit with them.

But when you go to the nineteenth century, second half of nineteenth century, we go to Senegal, you see doctors—even when you look at their administrative assumption—you see they start in a small office within the Direction of Interior and then slowly, because they are with the challenge of the disease, starting 1867 with the first major yellow fever epidemic, the doctor's voice becomes loud. It is sought, his expertise is sought. And so they start forming these health boards: Sanitary Commission, the Public and Sanitation Commission. But all of them are presided over by either the doctors or the mayor. But we have at least one or two doctors whose voice there is understood. And slowly, slowly, and as more epidemics are striking, making more deaths, then doctors will climb the administrative ladder. You will see them becoming members of the Administrative Council that advises the governor on many issues. And then they will become members of the Defense Council and no decision made in the colony will be without approval of the doctors.

But within those commissions, those health boards, you could find the representative of the mayor—the mayor will be there to represent the city. You will have the representatives of the army. You will have veterinarians, you will have the pharmacists, you will have the merchants, the business community. And so, when it comes to deciding sanitary measures to take, you will see within the discussion, you will see a conflict rising there because of the interests. You see the interests of health represented by doctors and pharmacists and veterinarians and then facing the interests of—the mayor is there to defend his voters. And then you have political interests of the colonial administration.

The final measures that are taken represent the compromise. That kind of medicine becomes colonial medicine separate from metropolitan size because it is subordinated to specific political conditions and economic pressures. You see that in the votes. When they vote, 20 people who vote, you see who are in favor and who are against. And then the arguments that are presented, you can see that the knowledge that is produced—the medical knowledge becomes colonial medicine subordinated to political and economic interests. I came across this kind of debate in 1879 discussing cases of diarrhea that were observed among some Europeans. And they mentioned two cases of people who crossed the bridge between the slum of Guet-Ndar and the city-island. And they got sick. Since miasma theory was also linking smoke coming from the drying of fish by the *indigènes*, they link it to the disease. So within that debate, you find that once that question was raised, the blame was placed on the fishermen who dried the fish and generated the smoke and you see the mayor, Mayor Gaspard Devès, bringing local knowledge. He says, "No, we know this case of diarrhea, we link it to eating fish that is not seasoned enough [laughs], which means not well cooked, and it can create this kind of diarrhea." So we have expertise against expertise; local knowledge against scientific knowledge, medical knowledge. But, of course, at the end, his voice was not prevalent. The result was to ban smoking of the fish during the rainy season.

A second example I will give is in the 1880s, that is, following the 1880-1881 yellow fever epidemic that produced high mortality among the Europeans. We don't say that it didn't produce also high mortality among the Africans because the statistics are not there. They had no access to the hospital, not all of them. And so when they saw that, they made the quarantines automatic, every summer, during the rainy season, because they know that is the

time when they have these epidemics of yellow fever. And so they will impose automatic quarantines. And it will go on until the 1890s when we see merchants protesting against the continuous reliance on the miasma theory when the germ theory was already spreading. The debates will rage over that. So we will see the doctors becoming kind of conservative and the merchants becoming progressives in a certain way. They call it 'new knowledge' to be implemented, while doctors still rely heavily on miasmatic theory.

And then in the post-colony, we see that actually there is some recognition that this plant could be—we see that in South Africa. South Africa in the post-Apartheid after 1994, the new South African government is one of the few governments in Africa that have made effort to promote local knowledge. They have created even one institution about local knowledge. And they have sent biologists and chemists and others to work with the *sangoma*, the local healers, to study their plants and see their efficacy/toxicity and then see how they can promote that knowledge and make it safe. And also it was part of the project of the government to make the *sangoma* auxiliary agents of the medical system because many people still go to see them for these other types of disease categories that I mentioned. But then, since HIV/AIDs is prevalent in South Africa, these *sangoma* will be instructed to also inform the patients about the need for the use of condoms, to be tested.

44:45

JC: Thinking about the debates between public health and economic experts, I read this book for a class in January of this year with Rhiannon Stephens and one of the things that really caught my attention was that there were a lot of parallels between responses to epidemics then and now. I was noticing debates over the financial costs of shutting down and

quarantining, stigmatization of particular groups during the spread of the virus. And so I'm wondering if, as a historian of epidemics, if you noticed any yourself as this pandemic has unfolded and if so, what do you make of these similarities?

KN: That is a very good question concerning historical parallels. It is striking to see—especially this pandemic, I have noticed the same thing during the HIV/AIDS pandemic. And I have seen that also during the Ebola: 2014-2016 Ebola epidemics. And then, coronavirus. I will start with the coronavirus. One striking historical parallel I observed was the use of the military language and the use of the military personnel to deal with the epidemic. I was in Paris in March of last year when the pandemic, the coronavirus, had devastated Italy and Spain and the Eastern part of France, the Mulhouse region. But then, I saw life was normal in Paris. I left Paris on March 12th. Four days later, March 16th, President Macron addressed a message to the French people. And this message was 21 minutes. But during those 21 minutes, he pronounced the words, "We are at war", "Nous sommes en guerre", "We are at war"—he pronounced it six times in a short message. And so, he used the military language, the war. He referred to coronavirus as an enemy. And he decreed a general mobilization. Those measures involved the use of police and military people to enforce those measures, to enforce compliance.

So I found that really striking. We can also go back in time. As I mentioned the 2014-2016 Ebola epidemic in Sierra Leone, Guinea, and Liberia. And there, also, because of the weak government structures, the lack of sufficient doctors or nurses, the disease was spreading. And here, it was spreading in cities. And while the earlier epidemics in Congo were in rural areas until 1995 when it reached the [city of Kikwit, DR Congo] for the first time and created panic.

The use, in that case also—the intervention of the international community for fear that the disease could reach New York easily, or Paris, or Beijing or other places. And so, they sent the US military there to build tents and labs to deal with the cases to be hospitalized and all the protective gears … how to dispose of the bodies. You had also British troops who went there and you have the local government also mobilized the military in enforcing quarantine, enforcing *cordon sanitaire*, people being held in schools even if they didn't provide water and so on, which will lead to protest. But we see the use of the military.

And if you go back—in my own work—we go back to the 1917-1920 bubonic plague in Saint-Louis and there, again, doctors didn't engage in conversation with leaders of the slums, of the *indigènes*, in order to discuss the measures to take to avoid the spread of bubonic plague. You know, how they are going to get the people involved in catching rats, for example. Or how to declare—when somebody is sick—how to declare that case. They didn't do all this. They came with their medical knowledge, they saw the *indigènes* as being ignorant people, and so they just needed to comply, without engaging them. People protested. When you look at the petition they sent to the mayor, although these are people who didn't have formal education, but some of them knew how to read and write. They wrote this petition in a broken French. But you can see that they are not opposing the measures, but the authorities must be sensitive to their cultural practices. They didn't have to do that, so they decided just to impose *cordon sanitaire* around their villages to evacuate them. That's a missed opportunity for engaging in cross-cultural communication that failed. Entire population of the sum was evacuated to the mainland without infrastructure and some of them were forced to go to stay with their relatives and so on.

So that's one historical parallel that I can mention. The second parallel that I also identified was the conflicts of interest between the interest of public health, those of commerce, and individual liberties. That was striking and I knew it was coming, given the fact that you are dealing with an unknown disease in West Africa in the second half of the nineteenth century. Yellow fever was an unknown disease, it created panic and so on. And coronavirus was also at the beginning, an unknown disease—how to deal with it, which measures to take. As the lockdown went on, the longer it went on, the more it led to the conflicts. Politicians that cared about their election were willing to move fast to get the economy going and so to oppose medical knowledge, to silence, even, the doctors who were in the commission to help the authorities. And so, the fear of economic collapse indicated that conflict … They said, "Some people will die, we need to accept that some people may die, but we need to get the economy going." I mean I was not surprised because in my research I have seen the debates over quarantines in the 1880s in Senegal, how merchants started to complain about the automatic quarantine because of their operations, because their businesses will collapse if that kind of quarantine continued. We see within that conflict of interest that there is also what I observed, especially here [in the US], too, and in France, the conflict of interest of the doctors themselves and the conflicts between medical knowledge and profits.

Dr. Didier Raoult: he runs the [Institut Hospitalo-Universitaire Méditerranée Infection] in Marseilles. He claimed that hydroxychloroquine was the key and he saw that the medical establishment were putting an emphasis on funding vaccines and not drugs. And he argued that that drive was motivated by profit—that Big Pharma had interest in a vaccine that will report a lot of money, compared to emphasizing treatment. The use of hydroxychloroquine—it is cheap

and they will not make money if the doctors are agreeing to use hydroxychloroquine. And actually, it was brought before the French senate to testify because other doctors were also opposing him and those doctors had personal interests that they didn't disclose. And those who are members of the scientific committee had conflict because those doctors whose research was funded by Big Pharma were also opposing the use of hydroxychloroquine, even without looking at its efficacy. I watched his defense before the senate, how he was asking questions, how he was—it was disappointing to see how some doctors were experiencing that conflict. So that was something I found also striking.

Going back in the nineteenth century, even after the germ theory, after 1901, you will see ongoing commitment of doctors to the miasma theory. So, you see the coexistence of miasmatic theory and germ theory until 1914 or so. It has to do with the routines and the fear because the germ theory was new and it took a campaign to convince even some doctors that that was the right way to go. That is another historical parallel that we see between past and present practices about quarantine, about the COVID-19, we see these parallels/conflict of interests. But we have also civil liberties. In Senegal, nineteenth century, people felt that these search parties that went in your house to see if everything is clean—it violated people's liberties because they felt that their domicile, their home, was violated in a certain way. And we see the same thing with the protests. We saw protest against the wearing of the masks. Some people using masks to make a political statement in tune with some political discourse that was dismissing medical knowledge for economic interest. We see the mask becoming part of the protest, part of the political discourse.

The third historical parallel that I can mention is the stigmatization. When you have an epidemic, some groups will be stigmatized. The *indigènes*, in the case that I am talking about, the *indigènes* were stigmatized because they were seen as being responsible for spreading the disease. And in the case of cholera epidemics in Senegal, you have Muslims being blamed because there was high mortality among the local population (the majority of them are Muslims). And then the Europeans had low mortality. You had only 92 Europeans who died versus 4,000 local people who died according to the missionary record. And their missionary discourse will present it in terms of religion: "The God of the Christians is stronger than the God of the Muslims." But in the medical discourse, we see that *indigènes* are blamed for the disease the same way they were blamed for the spread of yellow fever.

When we go to the fifteenth century, when syphilis appeared, there was a French/Italian war in the 1490s. The French troops invaded Italy and soon they were dying, many of them were dying. After many months in the field, an unknown disease. And so, the Italians started to call that disease, the "French disease." And the French called it, the "Italian disease." You see the stigma. And the Arabs called it the "Christian disease." So, stigma is always used. But the disease in question was simply syphilis, but it was not known late fifteenth century.

Now when we look at Ebola in West Africa, it became clear that there was a stigma attached to Ebola survivors. They saw them as being contagious, that they would still transmit that disease even if they were not physically sick. And so, they were shunned. And it required a campaign to explain that Ebola will kill you in a few hours through heavy hemorrhage. But if

somebody has survived it, going about his own business, then you shouldn't have a stigma against that person.

Another example: HIV/AIDs. Many governments refused—back in the 1980s when HIV/AIDS appeared—many governments, especially here I am talking about Africa, many governments refused to declare an epidemic, especially in places where tourism was really an important source of revenue, like Kenya, Zimbabwe, South Africa. It took them a while. It was the Ugandan government that was the first to actually declare it. To bring a famous Ugandan musician from London to show—it was "Slim," "the Slim disease," as they called it—and to convince people to use condoms, practice safe sex, and so on. President Museveni was not afraid about tourism collapsing. He saw that fighting the disease was important. It took a while for the Kenyan government, Congolese government, other governments to actually declare the disease, no matter the impact of it on stigma, on the country, and the impact on the economy.

We come to COVID. I observed that the political discourse in Washington was "this is the Chinese virus." Again, you see, that is a statement of stigma, China being a competitor of the USA. Even if Chinese manufacturing was producing all these masks that were sent to Europe and all over the world. But still, the stigma was there that "this is the Chinese virus." And behind it was the idea that the Chinese don't do things properly. They don't follow the protocols and so on and so on. Or they are exposing everybody to emerging diseases. The level of "Chinese virus" will create stigma—not only stigma against China but against the Asian-Americans. I haven't found examples from Europe in the newspapers I read. From France, I don't see attacks against Asian people. But here, we have seen a surge in the attacks against not the Chinese-Americans, but the Asian-Americans! It covers the whole continent, you know.

You can be Indian, you can be Korean, you can be Japanese—you are Chinese! And so we see that these anti-"Chinese" attacks are triggered by that stigma that came from high places. It led to even the issuance of a piece of legislation to make those attacks a criminal activity.

And the last thing I will say is also the stigmatization of the tropics when it comes to Africa. So, there is something that when we talk about continuity in the perception—something that has continued despite all the medical knowledge—the tropics are still looked at within the framework of the nineteenth century acclimatization theory. And I saw that, I observed that, in Senegal—even in Congo, where every summer, Europeans left to go to France—and in Senegal, because we have a huge population of the French, summertime is "time for going." All of them go [laughs]. And you see they are talking about it, they are preparing for it already in May. They are talking, "When are you going? When are you leaving?" and so on, because they run away from the heat that will be coming. But when you go to France, you find it is hot too! [laughs] And it has a long history in itself and it is also accompanied by something else. Because of the fear of tropical climate, all the civil servants who went to Senegal, their tenure was two to three years. You know, you have to leave because of the climate. And then you see that it has continued in the post-colony where those who go there in the framework of corporation—expert—they are given a bonus they call "hardship bonus." Because you are going into these "harsh" environments, they will add another salary, a stipend they call "hardship" because you are going into the tropical world. And I found that striking as continuing to this day.

So I think, yes, these are the three historical parallels that I can use: the use of the military language and military personnel, the conflict of interest between the interests of public

health and the interest of commerce and civil liberties, and also the stigmatization of people and of groups and of environment.

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