TPWKY - Special Episode - Jon Adams and Edmund Ramsden

EW: [00:00:00] Hi, I'm Erin Welsh and this is, this podcast Will Kill You. Welcome to another episode of the T-P-W-K-Y Book Club. In this series, I bring on authors of popular science and medicine books and ask them 1,000,001 questions about their books, about their process, and about themselves. I have loved putting these episodes together and we have featured some fascinating books so far this season. If you'd like to check out the full list of books in the T-P-W-K-Y book Club from this season and seasons past, you know the drill, head over to our website. This podcast will kill you.com. Find the extras tab and click on the link to our bookshop.org affiliate page. On that page, you'll find a bunch of podcast related book lists, including one for this book club. I'm constantly updating these lists. So make sure that you check in regularly to see what books might be featured in future episodes or if there were any that you missed. Pro tip. These lists are great sources for gift ideas for the book lovers in your life. If you have any books that you think would be a perfect fit for one of these episodes, please reach out through the contact us form on our website. We always love hearing from you all, a couple more pieces of business before moving on to the book of the week, and that is to first please rate. Review and subscribe. It really does help us out. And second, you can now find full video versions of most of our newest episodes on YouTube. Follow exactly right media's YouTube channel. So you never miss a new episode Drop.

Imagine you are standing in line at a cafe waiting to place an order, and the person behind you is just way too close. You're stuck in the middle seat on a long flight, battling with your seatmates over the two inches of armrest space. You're at a cocktail party leaning further and further away from the hall of fame, close talker, who's been regaling you with an overly detailed account of their dream from last night. How are you feeling? Uncomfortable encroached upon stressed, I feel like my heart rate went up. Just thinking about the close talker, all these hypothetical situations and the discomfort, they induce center around concepts familiar to all of us. Stress and personal space. When we feel like our personal space is being invaded, it doesn't feel good. It feels bad, but this idea of personal space and how we feel about crowds or our proximity to others is actually quite recent. The term personal space was only coined in the mid 20th century. Around that time, headlines proclaimed that humans were at risk of exceeding earth's carrying capacity. As the global population grew exponentially and urban centers swelled in size, and a handful of researchers grew increasingly interested in the physiological effects of stress. Crowding and population density. One of these researchers, John B. Calhoun, used rodents to

forecast how human behavior might alter as available space shrank to non-existence. What he observed did not bode well for the future of humanity. In Rat City overcrowding and urban derangement in the rodent universes of John B. Calhoun, authors Jon Adams and Ed Ramsden chronicle, the bizarre story of Calhoun's rodent utopias in which food, water, and bedding were unlimited, but space was not the outcome. Chaos, violence, complete social breakdown. Calhoun's research captured the public's imagination and was employed to promote a suite of dangerous ideas about population control and crime. All on the faulty logic that rodent behavior is equivalent to human behavior. It's not. I loved this fascinating and strange tale, and I am really excited to share more of it with you all. So let's take a quick break and get started. [00:05:00] Ed and Jon, thank you so much for chatting with me today.

JA: Thank you.

EW: I am just beyond thrilled to talk with you about John Calhoun, this mysterious and kind of bizarre, John Calhoun and his rat experiments. I mean, my mind was utterly blown when I learned that about the connection between these experiments and the secret of nim, which as a kid was one of my favorite. And movies and also is, is quite terrifying. I watched it recently, but we'll get into some of that later on. First, I would love it if you could give me a bird's eye view or rat's eye view of John Calhoun and his experiments and how you all came across them.

ER: I came across them really when I was doing my PhD and I was exploring the history of demography. Um, so population sciences and it relationship to eugenics and biological sciences in the 20th century, US and. While sort of demography as a field became increasingly social scientific, it moved increasingly to sociology and began to sort of push away from quite deliberately the influence of biology. Um. I noticed that there was this experiment that just people kept referring to, and even people who were really, really critical of, um, the influence of biological sciences in the social sciences. And this was the experiment by John B. Calhoun. So even in the sixties and seventies, they were referring to these rat experiments of overpopulation. A lot of demographers were concerned with population control, um, you know, population bomb, and they drew from Calhoun's experiment, um, when they were talking about the ill effects of population density. So I was really intrigued, you know, why this attention to these experiments with rats by sociologists and social scientists that normally would not be drawn to these kinds of experiments.

JA: I wasn't an historian and I was working alongside Ned at the London School of Economics and he was talking to me about this work he was doing

on, on Calhoun, um, and, and these weird rat studies. And I had, I'm sure I had heard of him, like when he was talking about the overpopulation studies and the rats going berserk. That a bell. I think I'd heard of the experiment somewhere, but I didn't have a name to it. And I think that's, a lot of people out there have that experience. They've heard of these experiments, but they don't know where they come from. And in a sense, when we started putting the story together, that was us trying to sort of situate John Calhoun as a scientist. Um, rather than just, you know, this, this kind of nutty professor with the, uh. With the strange box of rats,

EW: which he does at some point, kind of I emerge or slip into that role of, of nutty professor, but we'll get to that part of the story later. I, I kind of first wanna go back to really the creature at the heart of this, which is the rat. As you point out in your book, every city is a rat city. I mean, that's, they are everywhere globally distributed. How long ago did rats populate every continent? And what about them makes them so perfectly adapted to this cosmopolitan lifestyle?

JA: The contemporary thinking is that rats split off from mice into a separate species about sort of, uh, 10 million-ish years ago. So they were there long before humans were there. And the first kind of evidence of of there being kind of rat skeletons, mingled in amongst human sites of habitation is, is in the sort of late place to scene. So really as soon as, as soon as you start getting communal dwellings, and this is over in Eastern Asia, in, in modern day China. As soon as human habitation, seemingly you had rats living. So they, they've become what, what's called a commensal species, meaning that the two animals live side by side but don't necessarily harm one another. And then as, as human habitation spread out, the rats spread with them. And when trade routes opened up between the, the far east and into Europe, the rats traveled along with ice roads and came into, uh, it came into Western Europe. And then once trade routes opened up across the Atlantic, the rats came over, almost certainly immediately will have been the black first rat rat, and then subsequently the brown rat, which is, uh, it's, it's larger. It's, it's better at most stuff than the black and out the, uh, the black. And so it's the brown rat, the, the Norway rat, um, that, that you'll find in most, most American cities now, most western European [00:10:00] cities.

ER: Apart from some places actually though, because it, I think it's in California, that up in the palm trees because the rat is a much better climber. So it will still exist, but it does tend to be, um, pushed aside by its, uh, much stronger cosm.

EW: I love rats and um, and I find them so fascinating. And the other thing I find truly fascinating about this is that for how ubiquitous these rats are in our cities, we know kind of surprisingly little about their ecologies, their behaviors, sort of just their everyday lives, their in and out, what are they doing? And much of what we do know comes from this rat ecology. Project that John Calhoun ended up working on, how did he find himself on this research team? You know, moving from, I think Turtle Farms is where he got his start or one of the places he got his start to then these rat cities.

JA: Yeah. So, um, John Calhoun was born in 1917, so when the Second World War came around, he was a young researcher at the time and lots of, kind of very smart people were shuffled around during the war years. Jobs that they probably otherwise wouldn't have done. Some of them were pacifists, perhaps conscientious objectors, so they, they'd be put onto non-military, but war related work, work that could be of some kind of civic value. And the rodent ecology project emerged because Baltimore had a rat problem, which existed before the war, but, but when Baltimore ramped up. For the war effort in the early 1940s, the rat problem became an issue that, that the city thought needed fixing and quick. So they, they hired a kind of crack team of scientists, and Calhoun was amongst the, the second wave of these. And of course the problem is when you hire scientists to do. Don't just put pile of poison down. They get curious about the animals that they've been sent in to poison, and one of the first things they figured out was if they were gonna successfully keep these numbers down, they had to understand the behavior of the So Calhoun, who was an by training. Joins this team and immediately becomes fascinated by the social lives of these animals. You know? And as you say that there'd been almost no kind of investigative work studying the behavior, particularly of City Rats. And one of the things the Road Ecology project scientists set out to do was to treat the city as the rats natural habitat, and therefore, to come in with the ecologist question of. Okay, if this is their habitat, how do they live within it?

ER: It also came out through, uh, really as a consequence of some of the problems they faced in the earlier phases of the project. So the access to rodenticides, good ones that they tended to use as one called Red Squeal, and it came from the Mediterranean, so they didn't have. Their access to the normal rodenticides that they would normally get access to. So they had to devise their own and it, and to do this, they turned locally to the Johns Hopkins University where they had a, another leading figure in the study of, of rats, which was Kurt Richter. Kurt Richter was a physiologist who was busy studying well rat physiology, and he thought physiology determined so much of behavior. And he was looking at what rats ate and why, and he became employed in trying to develop a new poison, which they did successfully. And even though they were sort of going out and killing hundreds, thousands of rats, the rat population

wasn't being significantly dampened. And this was because they're very, very high rates of, um. Breeding of reproduction. So the rat populations were really bouncing back. So they needed to rethink how are we going to actually dampen control this population? And they began to move from a kind of magic bullet approach through chemicals, chemical warfare, to an ecological approach. The Rodent Control project became the Rodent Ecology Project, and E began to take it over also based at Johns Hopkins.

JA: One of the first things they noticed once they were looking at it from as, as a habitat and as ecologists was the population numbers were located, and again, the city was quite useful for this. It's Baltimore's gridded into into blocks as many North American cities are. And the rat population within each city block was more or less the same as, as they were able to count them, there were about 150 rats per block and they didn't cross the roads. Even if there was abundant garbage there for them to eat. The numbers never really got above 150. And so for the ecologist, this is fascinating. You know, the, the normal model would say the population expands until it runs resources and starvation. The space they had, they would limit their [00:15:00] population numbers. And so that, that's the fascinating question that Calhoun set out to solve was how come the can practice birth control.

EW: Let's take a quick break and when we get back, there's still so much to discuss. Welcome back everyone. I've been chatting with Jon Adams and Ed Ramsden about their book, rat City Overcrowding and Urban Derangement in the Rodent Universes of John B. Calhoun. Let's get back into things. It started out as this sort of field ecologist, let's just observe and see what happens. And then that gradually kind of morphs into more experimental. Let's manipulate some of these, uh, you know, these block boundaries to then making this full on kind of rat terrarium, which they did in the the Towson enclosure. What did these enclosures allow the team to do that they couldn't do with these purely observational studies in Baltimore?

JA: Yeah, so they were rapidly approaching a kind of observational horizon within the city blocks because there's only so much you can observe. People are obviously living in these houses, right? And whilst they could perch in the alleyways and watch the rats and sort of trace their footprints through the snow, at one point they put a dye in the food so they could follow blue rat feces around, uh, and see how many had been taking which routes. They'd run outta observational room there, and they wanted to know more about the behavior of the rats within their habitat. So Calhoun had this idea that he would build an artificial city block. And so he asks his neighbor out in Towson, which is just outside of Baltimore, he asked his neighbor, can I, can I build a, a rat enclosure

on this disused land? And his neighbor said, oh, sure, go ahead. You know, thinking he'd probably, you know, put a, like a hutch or a small pen. A quarter acre enclosure, uh, an area which he estimated covered about the available space that, that the rats would have. A city block. So it was a one-to-one representation of a city block, and he cut alleyways through it, high fences all around it. He installs some wild rats, builds an observation tower, and then just lets them be, there's a food hopper in the middle. There's water available. They've got nesting materials, but effectively it's a wild population of rats that, that are in there and they've got abundant space. Um, and then he could study them. Day by day and did so, you know, he was up every morning before work and every night, uh, sat in his observation tower with his binoculars. With his glasses. 27 months he observes them. Watching these lifecycles go through, watching them form into, into colonies. And pretty much all that we know about the behavior of brown rats comes from Calhoun's. Very, very meticulous, detailed over two year study of their behavior within the Towson enclosure.

ER: He uses also the latest technology. So there, the US Army is very interested in this because obviously they're trying to control, uh, rats not only at sort of bases within the US but but abroad as well. So. They carry out some of the first films of the rats in their behavior through his experimental spaces. He borrows some Snooper scopes. He calls them these night binoculars that allows him to watch them at night and he builds this tower, an observational tower over the pen, which allows him to watch all these rats whenever he can. And it becomes a kind of place where lots of people, other scientists come to view rats, and it's through. People coming to view these rats, um, that he gets really his next chance in terms of developing his career and his next opportunities for studying these kinds of semi artificial environments for understanding rat behavior.

EW: I mean, I'm truly a man dedicated to his craft. Just, just picturing him up there on the tower with his sneaker scopes. And I think what's, what's also so fascinating about these experiments are the questions that he's asking, because of course, science doesn't happen in a vacuum. The, the questions that we are interested in are always guided in part by the things that society is excited about or nervous about, or just preoccupied with in some way. This seems to be especially the case with Calhoun. He seems like he gets increasingly interested in the effects of overcrowding on his rat populations. Not long after the concepts of personal space or like the stress of crowds become popularized, which struck me, I could not believe how recent those concepts are, and so I'm curious why these concepts formed when they did.

ER: One of the [00:20:00] most important ones that comes in is the concept of stress and stress as we know it today. We, when we use this language all the

time, you know, I'm stressed and we understand that it has both psychological and physiological effects. Um, and indeed long-term stress we understand can contribute to, you know, heart disease, diabetes, and so on, as well as mental health, um, problems. But. Our concept of stress is really, really new. It's a 20th century construction. I mean, we did have ideas of sort of nervous disorders before that neuro athenia. Um, but it is very much our, our modern concept of stress and stressors is a 20th century construction and it. Really comes into vogue around World War II at the same time, 1930s and forties, and one of Calhoun's colleagues on the project is. An ecologist, but is also working with endocrinology. So he is looking at stress effects. So what he's seeming to understand is maybe what is actually lowering this wrap population isn't, as we'd previously considered, you know, access to to water, food and so on. That is certainly part of it. Actually it's stress because once you begin to close off access, it's not simply that they don't have enough food to eat. So they struggle and, and get ill and die. They get really stressed competing for these resources. That has an effect on their bodies, on their hearts, on their livers, and they get diseases and they die. What Calhoun does in this environment is he creates what he describes as a rat utopia, because here.

They're gonna get endless amounts of food, endless amounts of water, harborage, and he allows his population to grow. And as this population grows, he notices that the population is kind of restricted to the same number for about 150 rats. So he's trying to understand why is it that even with all these resources, this animal doesn. Breed beyond this particular level, and the answer he finds is stress. They're getting very, very stressed because they're competing with one another for space. There are territorial species, um, to access to females, for example, for the males are fighting a lot, and so the result is that. Some of the dominance are able to control the space within the pens and live relatively normal lives, but for the majority, they're forced into these sort of open spaces where they're competing with one another, continuously interacting with one another. There's a lot of. Unwanted interaction. Rats can't ignore one another like humans can. They continuously interact. That's increasing their stress levels, which is causing them to physically break down, and so the death rate begins to spike.

JA: Round about the same time a little bit later into the 1950s and entirely independent of Calhoun. There's what was then a, a mental institution in Canada, in Saskatchewan, and it became a kind of laboratory, the lead researcher there as a, an Englishman called Humphrey Osmond. And he attracted kind of researchers who wanted to, to look at how we treated people within institutions, people who were already mentally unwell. American researcher becomes fascinated by the way that the patients within the institutions would use space. And it's summer in the 1950s that introduces this

concept of personal space. So obviously we, we had a notion of personal space before, but it became a term of art only in the, in the 1950s and, and spreads almost immediately along with stress. 'Cause it made sense to people. They could, they could immediately recognize this, this sense of there being. Someone standing too close to you, that's stressful. Someone making eye contact, that's stressful. And that that lack of privacy was causing the patients in the institutions to suffer far more than they needed to. So some are, along with Osmond and, and an architect, they also bought on board, they redesigned the spaces where the patients are housed so that they can have. So that they can privacy, uh, retreat from company if they wanna, so they can mingle if they wanna, and, and the population becomes less violent, less hostile, less frightened. And then those concepts began to link up with the work that Calhoun is doing.

EW: I'm curious about the effect of stress on the rats. So when we're talking about these enclosures, and we're talking about increasing levels of stress, as there's more crowding, is there stress disparity among individuals? Are some rats simply much more or less stress than others?

JA: So one of the things Calhoun was able to observe in the Towson enclosure, this great big quarter acre pen [00:25:00] that he's got behind his house, is that the rats form into distinct colonies. So they, they're not just spread out breeding, you know, randomly with one another colonies form and about sort of 10 to 12 colonies would form within, within this quarter acre space. And amongst those colonies, there would be two or three pretty dominant colonies, which did nearly all the reproductive work. And there you would have maybe just one or two male rats and a kind of Harlem of, of, you know, 12 to 15 female rats. And most of the breeding was done within those colonies. The less successful colonies, uh, which were spaced around and separate from each other. They would very often have a greater male to female ratio and would perform almost no breeding work. And they would be the more stressed of the rat colonies as well. And at the very doldrums of that, you would have an all male colony, which did no reproductive work at all, for obvious reasons. Um, but it was certainly the case that the stress levels within the rats would then be arranged along that gradient of dominance.

ER: One of the, the nice things about stress is that it's measurable, physiologically measurable. It's one of the reasons it's so attractive. And so he'd take samples of his rats and pass them on to physiologists based at National Institute of Health, such as Julius Axelrod, who really is, you know, big name in physiology, who would do some autopsies for him, and they would be able to identify the sort of damage done to eternal. Organs. So they'd be sort of adrenal

hypertrophy, atrophy of lymphatic structures, ulceration of, uh, stomach, heart disease, and so on. Among the more stressed animals that were lowered down really in the dominance hierarchy.

EW: Let's take a quick break here. We'll be back before you know it. Welcome back everyone. I'm here chatting with Jon Adams and Ed Ramsden about their book, rat City. Let's get into some more questions. Calhoun moves from these Towson enclosures to, he just kind of like keeps doing this, but more and more and like bigger, different variables and these rat utopias to rat universes. And all of this is also happening it seems, with this backdrop. Where headlines and books are shouting about the dangers of overpopulation and urban population growth, and we're gonna exceed the carrying capacity of the earth, what will happen and so is how much is that influencing his own experiments? Especially, you know, when he starts to do these in Casey's barn, for instance.

JA: So when Calhoun's on the Rodent Ecology Project, he's an employee of Johns Hopkins. He's subsequently hired by the National Institute of Mental Health, which is a newly formed post-war institution at the, uh, the National Institute of Health in in Bethesda, and at the National Institute of Mental Health. He's looking at stress in these rodent populations, but because. The nature of that institution. He's very much invited by his employers to make connections with human populations. So it's unclear from reading his work when he starts thinking about his rats as comparators to human populations. Certainly by this period in the late 1950s when he's at the National Institute of Mental Health. Social stress is a, a topic of discussion in human societies and obviously of interest to the mental health of the American population. So it's really at that point that he starts to make those connections. There'd been an ecological concern. About the sheer volume of humans on the planet. That dates back to at least the 1940s. Okay? There was two books wrote to Survival by, uh, William Voight and our Plu Planet by, uh, Fairfield Osborne. And these two books really kind of kickstart the modern environmentalist movement, and they're both predicated on this idea that doesn't have an unlimited bouncy right. Billions and billions of humans upon it. Eventually we're gonna use up all the resources, or we're gonna damage the planet and degrade the environment so much that it'll become uninhabitable, both for humans and for a large section of, of our other biomass. So the overpopulation concerned from that ecological perspective had been bubbling away for a while.

EW: Okay.

JA: Post-war, that takes a slightly different slant.

ER: Rapid population growth was seen as a, a real problem for sort of. Political stability in nations across the world, which had recently become free of colonial powers. But now there was a concern, of course, with socialism, with communism, and there was a sense that w. In order to stabilize these countries to make them [00:30:00] more aligned with the West, you needed sort of to invest in their development. We needed to invest finances economically. We needed to, uh, support the development of their industries, their educational systems, but. Rapid population growth was going to completely destabilize all these countries. It's gonna restrict their development. And also within the United States itself, there was a sense that high population density led to a range of social problems. That it was the cause, the driver of social unrest. Um, so population control. Was the language that was very prominent during this period. So Calhoun's work really chimes with this interest.

JA: This period overlaps with the experiments he's been doing with Rats Act, uh, Casey's Bond as part of his work at the National Institute of Mental Health, and those experiments are unlike Towson, which is very much an observational experiment at Casey's Bond, he begins to really focus down on what happens to a population when the numbers get too high. Right. It hadn't done within the Baltimore blocks because they self-regulate. It hadn't done at Towson 'cause they had enough room, so he shrinks the room down. This is where his attention shifts from general rodent behavior to the specific problems of elevated population densities. One of the first things he discovers is. As the rats become more and more densely populated, and as the number of unwanted social interactions increases beyond a certain threshold, all the behavioral norms break down. And so at Casey's Barn, he sees this first kind of dramatic evidence of what happens to a population when it passes a certain threshold of density.

And what happens is, is horrendous. The males form gangs and attack the females. Uh, the mating rituals break down, uh, the young and neglected, uh, the family units, which have been so stable and kind of harmonious Within Towson become chaotic. Pops are born and dropped on the floor and left to die or cannibalized by other rats. The violence becomes so kind of intense that, that the rats begin slashing and biting at one another in a way they never do in the wild. As soon as those results are published, it looks exactly like all these concerns people have with San Francisco, with New York, with Detroit. They're looking at the American cities. They're looking at Calhoun's work and immediately saying, well, look, there must be some biological connection with too densely populated. The cities are driving as mad, and that's really in, in the early 1960s when Calhoun's work really hits the public in a, in a big way.

EW: What we're seeing in these. In these enclosures, in these utopias, which is a not the most appropriate, I would say, word to describe what's happening with these, with these poor rats whose populations are, are crashing and are under a huge amount of stress. But what we're seeing are these, uh, these crashes where. In Baltimore and the Towson enclosures, we're seeing a population plateau. But here there are these extreme behavioral reactions, pathological togetherness, and then like behavioral sink. And these populations, like in Casey's barn, are starting to crash really dramatically. Can you describe some of what he is seeing when these populations are just crashing?

JA: Yeah, so I think the reason why these strange behaviors begin to emerge the violence, the pathological togetherness, is because the, the design of the enclosure in Casey's barn is such that it allows the rats to congregate in the middle, and it doesn't allow them to escape. So in the wild or in a larger environment, it would never put up with those conditions. They'd have butted off and formed a new colony somewhere else and just got away from it. But instead these rats find themselves trapped in a place where they're not gonna die of starvation and they're not gonna run outta water. And that's an entirely unnatural situation. And it's sometimes said of Calhoun's work, well, these aren't natural environments, this isn't happening. Nature Calhoun's well aware of this. And that's kind of the point because he's looking at cities and thinking, well, you know, those are artificial environments as well. They congregate far more people in one place than you would ever normally get. They effectively prevent those people from leaving. I mean, in theory, an individual can leave a city, but, you know, as, as everyone saw with, um, hurricane Katrina for example, individuals very often can't leave a city even when there's an emergency.

So people don't have the agency that, that it sometimes looks like they have. So what he'd done with with that enclosure is create a space which would generate artificially high levels of population density. And that's when he begins to see the behavioral breakdowns. So the pathological togetherness was a term he used for rats, which would congregate all around the same feeding hopper. The rats would. Begin to associate feeding with having another rat next to them because there was always another rat next to them when they fed. So they [00:35:00] became conditioned to only feed when there were other rats there. And this effect spreads out, which means that all the rats will gather around a single hopper, or they'll all gather around a single. Bottle in, in great clusters, you know, 50, 60 rats all around the same food hopper, whilst the other hoppers left completely untouched. They become almost addicted to the idea of proximity and that then sends their bodies into this catastrophic process of, of stress related breakdown. And, and the mortality rates just become enormous. You know, by the end of the experiment, the mortality rates are around 96%. Almost

none of the young are surviving. And of course, at that point, the populations crashed into a, a local extinction. Um, but, but it's all because of the design of the room that he set up. He didn't know that would happen. He did expect that, that the rats would distribute themselves unevenly. He just didn't realize they would do it quite as catastrophically as they did,

ER: and that's what a behavioral sink is. Really, it is. It is the collection of these rats pathological togetherness around in a particular spaces, and it's, you know, as he makes. Clear. The pejorative sense around the language is not accidental, right? It's not a positive thing. Um, a behavioral sink is very destructive. It exacerbates the other pathologies that are found in the group. So it's not pathological in its itself, it's an anomaly. Rats eat and drink alone, separate. There's a lot of violence in these spaces because they're continuously interacting with each other, and then violence will break out and there'll be a lot of biting and so on, and a lot of, a lot of death. Mm-hmm. And what he thinks is happens among the rats is really a breakdown of their more complex behaviors. So. You know, they become much more withdrawn. So that's a later pathology that he begins to look at. And earlier we talked about stress. He talks about animals that actually become de-stressed. Hmm. They're so withdrawn. They're not stressed at all, but they're not actually competing and living as animals. They're not competing for, say if they're male for females for access to food for territory. They just have no social role. In that mouse or rat society, they just sit on the floor. Eat, drink and preen themselves, and he describes this group as beautiful ones and dropouts, but he's beginning to think rats are limited in a sense by their evolutionary development, by their biological template.

Humans have the possibility He's arguing of adapting. Two of the environments that we find ourselves. So he's, there's a limit to which you can sort of compare humans. Rats, that's his point. He's saying, look, human beings, we can actually study this. We can say, you know, we need to actually change the way in which cities are built, the way we relate to one another in order to overcome these kinds of problems. One of the things that we did when, as part of the project we were really interested in saying, you know, where did Calhoun's work go? Where was it really influential? Because he's making these big leaps. So a lot of ecologists who are doing work with crowding, looking at stress, they're looking at this and they're saying, you are really, you know, making these massive jumps, these comparisons to human beings. So a lot of biologists think he's really sort of. Going too far away really, I think from the field. So we were interested where does his research go? And some of the areas that it's really influential in are really psychologists who are looking at people in confined environments where they really don't have. A lot of access to space and a lot of freedom to move around. So prisons, hospitals, mental institutions in particular. But there was also a little spike around road rage incidents. For example, you

know, whether or not that there is something going on here that explains, you know, this spike in sort of violence in crowded traffic, so. What's interesting, I think for us as historians to see where this kind of research goes and why, and right, again, it's context. You're thinking of the American city, 1960, seventies concern over institutions. We have the Attica Prison, um, riot, for example. It's kind of inevitable. Are we thinking that a lot of people are looking around for experimental evidence, for what they seem to see happening to the American city and American institutions at this time?

JA: The logistic explanation for these behaviors also means that people don't have to think too much about the political right for, for a certain, for a certain section of the population, an account which blames all these problems that America cities seem to be having in the 1960s. [00:40:00] The biology of the, you know, human animal. Mm-hmm. It, it kind of lets them off the hook for having to address a lot of the social and political issues, which are almost certainly a more proximate cause. So that's the other appeal I think of, of work like Calhouns, is this turn to biology to explain. Problems that actually probably have their feet in politics.

EW: It's, it's such a great example, I think, of how you have limited control or no control really over how other people might use your research once it's out there. And so it seems like some politicians used calhoun's, the results from his experiments to endorse, you know, violence or an increased policing state rather than. Increasing a social safety net. It's like, oh, well look, violence is inevitable. And so we can't do anything about that. We just need to increase police. And as you said, it's a way of being like, well, this is out of our control. We know what happens here. We have, we have a limited resources, and so we should do this instead of preventing what this might look like and. I think then that sort of is when the comparison between humans and rats begins to slip and the biologists are like, let's pump the brakes on this. Yeah. There's a limit. But then other people don't see the limit necessarily.

JA: Yeah, and I, I think I, Calhoun had always, he'd always caught it press attention, you know, for really early on. So he, he's getting visits by the Baltimore Sun. When he's on the Rodent Ecology Project in the 1940s before he's even done the Towson enclosure. Um, so he, he liked the idea that people took an interest in his work compiling the research for the book. You get the sense that, that he was playing a very dangerous game by allowing the reporters to run away with the ideas. And so he often wouldn't make the sensational comment himself. But if a reporter wanted to compare, you know, the Dropout Racks to the Dropout Hippies of the 1960s. Would put his hands up and say, oh, well I'm not making the comparison, but I suppose you could. And that that's

dangerous in as much as your influence runs away with you when you are no longer the author of. Conclusions, and I think in courting as much press attention as he did, certainly by the late sixties and into the early 1970s, the dominant narrative is one which he's increasingly feel is slip outta his control. It's very much doom and gloom. We're heading for societal collapse. There's too many of us. The problems with the cities are irresolvable. Calhoun has this kind of positive message of, oh, well actually if we redesign the spaces, we could have a happier society. No one wants to hear that, right? Not when you've got behavioral sinks and you know, gangs and, and families falling apart. To talk about instead,

ER: later on in from the 1970s, he's running sort of two approaches to his research. Two experimental systems, very closely linked. One is. Shocking, I suppose, shocking people into the dangers and realities of uncontrolled population growth. So Universe 25, for example, is a mouse experiment. Yes. So it begins to move increasingly onto mount mice because they're easier to work with smaller, less complex. For the kind of experiments that he's doing. And here you have the construction of an environment, which looks like something. When I first saw this, I just thought he's something, a blade runner. I mean, it's really a sort of terrifying, um, dystopia that he's created with these little apartment buildings up and down for mice. Um, and he traces this experiment for over, I think it's like four and a half years, isn't it, Jon? Uh,

JA: yes. It's, yeah.

ER: So he allows this population to grow and he says, you know, this time I'm not gonna end the experiment early. So four and a half years, the population grows and then begins to crash and decline to the point that the last mouse dies, I think is reported in the New York. Times with a death notice. I mean, it, it really does get a lot of attention, but this is a sort of really catastrophic view. I mean, at the end, the animals are so disturbed by their environment, so withdrawn that they don't know how to reproduce. They don't know how to rear young. So the population he says two years before it actually ends is, is over because they're not reproducing. And then it's just the longevity of the remaining members, even when he takes. Animals outta this environment and seeds them into a new environment. So these are the most withdrawn, beautiful ones. As he describes them, they look really healthy. Um, he seeds them into a new environment, they don't reproduce.

So on the one hand, he's producing experiments like this, which are really shocking. You know, that this could be the future of, of humanity. Yet. On the other hand, he's also doing experiments where he's trying to temper the effects

of overcrowding. Better. Design of physical space can mean that perhaps communities of rodents could live [00:45:00] more normal lives among high density. He's trying to educate his rodents. He refer to them as super rats. At one point, in order to get a drink of water or food, they have to be next to another one. So the idea is that they develop a sense of cooperation, and he describes this again, leaping, you know, for comparisons with human beings in terms of altruism. And he believes that if he can culture his rats to sort of withstand some of the detrimental effects of density, human beings with all their capacity intellectual capacities could actually. Design a future for humanity. That was good. In fact, not just survivable, but a positive one. Um, because he thinks that these stresses, these challenges that we face as human beings can actually drive our societies as they have in the past into increased innovation. He thinks now we're at a sort of crossroads. He argued and we have the opportunity really to redefine how we live. And also reconstruct our spaces to make them more healthy. The problem is, is that people listen to the first message. They aren't

EW: uhhuh

ER: drawn as much to the second.

EW: Of course, it's always the shocking bit, the, the doom and gloom that captures people's attentions and makes, that's the thing that people want to, are drawn to oddly, uh, but that's not the only way that his work is capturing the public's imagination. Of course, at the very top, I mentioned the secret of nim. Which, I mean, I was speechless when I learned that NIM NIMH refers to the National Institute of Mental Health and in rewatching the movie recently when they talk about the National Institute of Mental Health. I, I mean, I couldn't believe it. So can you tell me how Calhoun's work somehow finds its way into a children's book and movie?

JA: And so in the, I think it's the early 1970s, uh, maybe, maybe late sixties, national Geographic send a reporter to Calhoun's Lab at the National Institute of Mental Health, a guy called Robert Conley, and we dug around, but as far as we can tell, Conley didn't actually write any article about Calhoun's work, but he definitely visited the rooms. Conley clearly didn't forget the encounter either because a few years afterwards he published. Frisbee and the rats of Nim. Yeah. Which is this story about a female rat who is struggling to save her family and encounters these super intelligent rats, which are the rats of Nim, which are rats, which have escaped from a laboratory and have these kind of human levels of, of skill where they can, you know, use electricity and machinery and they have language. Con rather publishes this under the name Robert O'Brien. If the name sounds wrong, he uses a pseudonym for his children's fiction. But the

assumption is that, that those rats were inspired by the experiments he would've encountered Calhoun doing at the time on trying to create cultured and intelligent rats that were smarter than, than the average rodent. So. That was an influence that Calhoun certainly didn't seem coming, but was, was always very, very proud of. He was very, very glad that that at least one person had got the positive message outta his work, albeit only through the medium of children's fiction,

EW: calhoun's experiments. Go so far, and they are, you know, invoked so often by politicians, by psychologists, um, by ecologist. I mean, they are, as you described, hugely influential, but then he kind of slowly slips from relevance over time and. He gets shoved aside at the National Institute of Mental Health. He resigns and then he just kind of like fades away in a sense. What do you think his legacy is today? Like what Mark do you think he left on? Science or society or the way that we think about space and crowds and populations?

JA: I, I think that as a group of. Thinkers and researchers in the kind of mid 20th century is really one of the first to get on top of this idea that our physical environment can positively or negatively affect our health. And that's very much, you know, I think that's a really normalized idea now. But when Calhoun and uh. And they were very much collaborating with one another. They were turning people on this idea that you could improve how a society functioned. By improving the physical environment in which you housed your citizens. So the idea that that architecture should be sympathetic to the needs of the inhabitants and not simply act like a rack into which you stack [00:50:00] a certain number of lab cages. That I think is one of the legacies of Calhoun's work taken as a part of that kind of revolution in, in design and architecture.

ER: I think, you know, for me, he, he represents this period in post-war United States, which was, there was a period of optimism really, that social scientists, biological scientists, psychiatrists, psychologists, could work together to solve a lot of these problems. And if you look at this sort of the government money that goes into institutions like the National Institute of Mental Health. Huge proportion of it actually goes to social scientists, what we describe as social psychiatrists. People who recognized say that the wider environment, as John said, the wider environment impacts our mental health. Mm-hmm. And that if you want to sort of address, um. Issues of mental health in cities. You need to look at problems such as housing, such as employment. These are the fundamental things you need to look at, right? You are not going to solve them simply by increasing the research into pharmaceuticals, which is what his lab was actually, you know, he, he lost his. Because he was replaced by someone who was actually looking at, um, how to develop new forms of antidepressants

in their effectiveness. His concern with that was that all this sort of social science research into how we improve our environments was being lost.

JA: And that was, that was very much the kind of narrative arc that, that we followed in, in Rat City was this sense of this work on social space and mental health. Just being really, it, it, it kind of collapses almost immediately when this new generation of psychopharmacological substances emerges these drugs. A cheaper and quicker, and in the short term, more effective fix for society's mental health problems. And for two or three decades from the sort of mid 1970s onwards, drugs was the main solution. And in fact, in the last few years, you've begun to see. Institutions, national mental health, turning back more to look again at these non-pharmacological interventions. But it was, it was very much the rise of the mood drugs that that did for Calhouns work. And I think along with that as well was, was a growing political unease about. Rhetoric of overpopulation. So it was, it was no longer the done thing to talk about, uh, uh, surging global population, uh, in terms of, you know, that being a problem that required fixing.

ER: And there was also, I mean, that was kind of just as a perfect storm of. Of, you know, science and policy sort of brought Calhoun's research to national attention. It also created problems really by the seventies and eighties. So, as John said, there's a pushback against ideas of population control. There's also a backlash against sociobiology. About, you know, this evolutionary psychology, the, the belief that humans are just like animals and that humans are inherently very aggressive, territorial animals. Um, so his work is associated with this, but also I think there is a sort of new, we're entering into a new neoliberal world really by the late seventies, early eighties, whereby there isn't the, this interest in funding. Large scale, long term social science, ecological research projects, um, and a lot of the money is cut from these kinds of research programs.

EW: Again, kind of coming back to the work that is done, the science that is done happens when it happens because of the broader world, and I feel like Calhoun's work really does illustrate that science doesn't happen in a vacuum. It's a product of all of the other things that are happening around him, who he is as a product of the environment that he. Grew up in and then is now participating in. And I, I just, I have to say, this has been just a really fascinating conversation and I really appreciate you taking the time to chat today.

JA: Oh, it's, it's been marvelous. Thank you.

ER: Thank you. It's my pleasure. Thank you.

EW: A big thank you again to Jon Adams and Ed Ramsden for taking the time to chat with me. I love talking about rats. If you enjoyed today's episode and would like to learn more, check out our website. This podcast will kill you.com, where I'll post a link to where you can find Rat City overcrowding and Urban derangement in the [00:55:00] rodent universes of John B. Calhoun, as well as a link to Jon's and Ed's websites where you can find their other work. And don't forget, you can check out our website for all sorts of other cool things, including but not limited to transcripts, quarantining, and placebo reader recipes. Show notes and references for all of our episodes. Links to merch, our bookshop.org affiliate account, our good reads list, a firsthand account form, and music by blood Mobile. Speaking of which, thank you to Blood Mobile for providing the music for this episode and all our episodes. Thank you to Liana Kuci and Tom Bry Fogel for our audio mixing. And thanks to you listeners for listening. I hope you liked this episode and our loving being part of the T-P-W-K-Y Book Club, a special thank you as always to our fantastic patrons. We appreciate your support so very much. Well, until next time, keep washing those hands.