Mind & Life Podcast Transcript
Andreas Roepstorff – Interacting Minds

Original Air Date: September 2, 2020
Retrieved from: https://podcast.mindandlife.org/andreas-roepstorff/

Opening Quote – Andreas Roepstorff (00:02): *The moment that you get into rumination, the moment that thoughts just seem to be coming back to you again and again, and you can't let go of them, then with some kind of a mindfulness training, it's possible to say, "Well, it is just a thought." You can step out of it, and that in interesting ways allows it to dissolve. Part of what it seems to do, a lot of these contemplative practices, is that one suddenly realizes that actually between stimulus and response, there is a space that can be explored. There is a space that can be looked at differently. There is a way to say that, that which used to be all of it, can just be part of what is there and then let go. And that in itself is just an amazing discovery.*

Intro – Wendy Hasenkamp (00:45): Welcome to Mind & Life. I'm Wendy Hasenkamp. Before we get to this week's show, I just want to mention a couple of things. As you may know, podcasting is a new format for us here at Mind & Life, and we've been so thrilled with the response to the show so far. Over the course of our first 10 episodes, we've explored a wide range of topics, including consciousness, different views on meditation, the roots of compassion, where the research needs to go, concepts of self and other, intersections of contemplative practice on race, and much more. One of the great things about podcasts is that they can reach a really wide audience, and they're free and easily accessible. But at the same time, we don't really know who's listening, and what you might want to hear about.

(01:32) So, to that end, we've created a brief listener survey to help us learn a little more about you. You can find it at podcast.mindandlife.org/survey. We would so appreciate it if you could take a few minutes to fill it out. You can share with us your interests, what you enjoy about the show, and what you'd like to see moving forward. This is super valuable information for us, and it will definitely help us make the show better. Plus, if you like, you'll be entered to win one of three signed copies of my book, The Monastery and The Microscope. It's partially an overview of the dialogue between Buddhism and science. And it's also a summary of a groundbreaking conversation between the Dalai Lama and leading scientists about mind, mindfulness, and the nature of reality. So, please do take a few moments to share your feedback with us in the survey. It really means a lot. Just go to podcast.mindandlife.org/survey.

(02:25) The other thing to mention is that, this is the last episode of our first season, and we're going to be taking a break for a few months from releasing shows. We'll be continuing to record and edit interviews, and also explore some new angles. And we might even drop a bonus episode or two into your feed, before we pick up again with Season 2. In the meantime, you can stay in the loop with all that Mind & Life has going on, by signing up for our newsletter at mindandlife.org and following us on social media. We'll be holding the Contemplative Research Conference online in early November, and we'll be

announcing some new and different kinds of virtual offerings very soon. So, please stay connected with us, and we'll be back in your feeds in a few months. OK — on to today's show.

(03:08) This week, I'm speaking with Andreas Roepstorff, who's based at Aarhus University in Denmark. Andreas actually came up in our last show with Evan Thompson, where Evan mentioned him as one of the few researchers who's really doing the work of integrating factors like social context into cutting-edge brain research. Andreas has a background in both neuroscience and anthropology, and we discuss how these two approaches to understanding the mind are quite distinct, but also offer important complements to one another.

(03:44) I spoke with Andreas last fall in Germany, where I was fortunate enough to attend a Mind & Life Think Tank that he organized, and we talk about that a little bit more in our interview. After the think tank, we attended the Contemplative Science Symposium held by Mind & Life Europe, which took place in a beautiful old (and quite echoey) monastery, and that's where we sat down for this chat.

(04:07) We cover a number of topics, including intersubjectivity, and his work to bring together first- and third-person perspectives in studying the mind. He goes into one example of this in his research on the ritual practice of fire-walking. We talk about meditation, and microphenomenology, which is an interview method to unpack brief moments of experience in very deep ways. We discuss his research on playfulness, we talk about predictive models of mind, the power of mindfulness to help with rumination, and the importance of exploring how two minds can process and respond differently to the same experience.

(04:48) I think the way that Andreas takes seriously the relevance of social context in his research on the mind, is going to be essential as the field moves forward. So, I'm really happy to be able to share his work and perspective with you today. I hope you enjoy the conversation as much as I did. It's my pleasure to bring you Andreas Roepstorff.

Wendy Hasenkamp (05:11): Andreas, thank you so much for joining us today.

Andreas Roepstorff (05:13): Thank you, Wendy.

Wendy Hasenkamp (05:14): I would love to hear a little bit about your background. You have a very unique perspective, I feel, that you bring to this field. You've been trained in both anthropology and neuroscience, which I think have very different perspectives usually, on the mind. So can you say a little bit about how you got interested in both of those angles?

Andreas Roepstorff (05:30): Yeah. So I guess I was someone who couldn't really figure out whether I belonged in the humanities or in the natural sciences. After traveling in Southeast Asia and Australia, I started studying biochemistry and biotechnology, and realized after a year, that that was just not what I had hoped university would be about. My fellow students were really wonderful, but it was just not what I needed. And then, I decided to shift to anthropology, but at the same time, keeping a foot in biology. I didn't have a clear plan of where that would take me, and what I would do with it, but I just felt that there was something about the anthropology-biology match that seemed right to me at the time.

Wendy Hasenkamp (06:15): Did you end up with a degree actually in both?

Andreas Roepstorff (06:17): Yeah. I ended up with two. It took a while, with two parallel degrees... But it was a frustrating process for a long time. And I think what frustrated me was that, when I was with my natural science friends, I got very philosophical, and not really getting it, they thought. And, when I was with my anthropology colleagues, they thought I was kind of way out on the spectrum, in terms of not understanding the complexities of social life.

Wendy Hasenkamp (06:45): It was too reductionist, from that side.

Andreas Roepstorff (06:47): Yeah, yeah. So, in a very interesting way, there was that kind of strange sense for a while, of not fitting in for the opposite reasons. And that gave me at some point, huge problems about who am I, why I'm studying, what am I doing? But then, at some point, I even inscribed myself in medicine, because I thought that that will be the solution. I'd start studying medicine, that will give me something, I should be fine. And I got so far as the first week of medicine, and I looked around, and there were these kinds of people coming right from high school, ready to start medicine. And I could see that that was just really not the right thing to do because, I really loved my biology, I really loved my anthropology. The problem was not in what I was doing, but it was in figuring out some kind of a space...

Wendy Hasenkamp (07:35): Putting them together?

Andreas Roepstorff (07:36): Yeah. And I had brought myself into a situation where, somehow I was inscribed three places at the same time at university, and that was just untenable. I thought, how do I get myself out of this again? And then, I saw on a notice board, somewhere at university, someone who said, "We need a student to do a research project on neuroscience." I had had absolutely no neuroscience at that time, but I went up and knocked at the door and said, "I'm a good student, I'm a hard worker. Can you use me?" And no one else had knocked on the door.

(08:11) So in a sense, I was given this scholarship to study hippocampus electrophysiology. It involved the rat's brain — dissecting out hippocampus, keeping it alive, sending electrophysiological needles into it, recording stuff from it. And I think what it first and foremost gave me, was kind of a space that I really needed to figure out, "Well, what should I be doing around it?" I realized that I really, really liked the research part of it. I also realized that the anthropology-biology link, that in a sense it was something that I needed to find out. And for a long time, I thought that I would basically do my anthropology without relating it to biology, and my biology without relating it to anthropology. Because, I had that sense that the two disciplines were so different, and the kind of schooling that you needed to do was so different, that I thought by keeping them separate, I could develop a clear idea of what each of them could give, before I should try to do any kind of overlap between them.

(09:15) And that was almost like a bi-cultural training, you can say, right? That you figure out, "Well, something counts here, something else counts here. Both of these make perfect sense." You have problems when you do the translation, then you can have problems when people are in the same room... But I could actually figure out how to navigate back and forth between them. Which at the end of the day, of course, is an anthropological position. How do you do that? How do you come to terms with that strange aspect of participating and observing in both disciplines?

Wendy Hasenkamp (09:49): Yeah. Can you say a little more about... You said "what counts" in each side, right? And that's struck me a lot working in this interdisciplinary space. Being trained as a scientist, you're very familiar with data, and experimentation. And when I first stepped into other spaces of humanities, I didn't even understand, like the currency of what was being talked about. So, can you just give a little bit of an example of the whole viewpoints from the different perspectives?

Andreas Roepstorff (10:14): Yeah. So, I think I had a really good training in biology, working in this neurobiological laboratory. It was so much about understanding, what's it like to be precise about experimentation? What's it like to try to develop tools to describe these things that are in the data, but the data doesn't give them themselves? So, we were looking at electrophysiological traces, and there were patterns there, and ways of analyzing, ways of modeling became so to say, almost tools to grasp something that we couldn't get at through language. And that was a very interesting and deep experience, in that part of it. It wasn't complicated modeling by today's standards, but for me, it was a revelation.

(10:59) Whereas, I think where anthropology is really particular, and probably also different from many other social science and humanities disciplines is that, at the end of the day, it's really about realizing that, what you bring into the world is yourself and your own body. And it's something about starting to trust that those experiences you have, and the way you can relate to others, are the only means, or the main means, you have of actually building up some kind of an understanding.

(11:27) So, both of them were very methodologically savvy, I thought, but you can say, one of them was really about developing tools that would let reality almost speak by itself, by giving those tools that could make the data stand out, and see patterns in it. And the other one was really about saying, "Well, how can I somehow turn my attention to what happens here, and be sensitive to what's at stake in this for me, and shift it away from being just my personal project, to see, is there something in this, which is of more general value?" And I'm extremely grateful for both of these trainings. And I think most of what I do is, in a sense, shifting back and forth between two different modes of analysis here.

Wendy Hasenkamp (12:13): Yeah. I think it's a really productive synthesis, that we don't have enough of. So, with those two trainings and perspectives, how do you view the mind?

Andreas Roepstorff (12:27): That's a big question. So, how do I view the mind? Well, the first very obvious question is that, you can approach the mind both from, let's say this kind of objective third-person, analytical perspective, where you find ways of getting at — you see almost signs of the workings of the mind, and you try to find tools to make them stand out. Brain imaging that I worked with for a while, it is one of those instances. You can say, this idea that somehow we can constrain situations in such a way that people's brains, people's minds do something that's relatively confined, and that allows us to open a small window onto some of the underlying biological processes. And that's crazily difficult. Amazing statisticians and modelers have really been working to see, how can you get something sensible out of that? How can we map that kind of landscape in a nontrivial way? And this is obviously one aspect of what the mind is, is getting some handle on it, either through behavior or through something else.

(13:32) The other obvious aspect of course, is then to say, well there is also an experiential component to it, right? That there is something what it is like to be me, inside a scanner or in an experiment or in any other situation. And the way that... I think the place where I first became aware of that was, at some point I ended up doing a research project that was doing kind of an anthropology of neuroscience, or anthropology of brain imaging. And it was very obvious there that — brain imaging was relatively novel — we were playing with, how can we make sense of the type of experiments we did? Obviously, it was very different being on the inside, than being on the outside of a scanner.

(14:12) So, the first experiment I took part in was a small experiment that wanted to investigate, what happens when information travels from one hemisphere to another hemisphere. It was in an MRI scanner, and the study was quite simple — some persons should be tickled under their left foot, and as a response, they should tap with the right finger. Then, there would be the interhemispheric transfer.

(14:37) And, as often happens when you're an anthropologist, you end up getting a task. And my first task was to be the tickler. [laughter] We had a very complicated set up where, there was kind of a muscle massage apparatus that could vibrate, but it could not go near the scanner, because it was magnetic. So then, there was a long fiber rod, and I was standing and holding this thing, and then touching the person's foot, and then not touching, touching, not touching... And as a response, we could see this tapping with the finger. And you know, from the outside, it just looks like a perfect stimulus-response.

(15:13) So the next experience was, I became the subject, or the participant, in the experiment. And as I moved inside the scanner, I discovered what none of us had thought about. There was a mirror in the scanner, and in that mirror, I could see the person approaching me here, starting to tickle me. And I thought, from inside the scanner, from this first-person perspective, it wasn't really obvious whether I was reacting to the tickling, or to the anticipation of the tickling, because I could see it. Then after a while, I got really annoyed with the experimenter. And I thought, "This is a really stupid experiment. Why am I lying here, with a tickle under my foot?" So I thought, I'll cheat him. So, I began systematically, wherever I was tickled on my foot, to think of one thing, and then think of something else in the other situations.

Wendy Hasenkamp (15:57): That's great! *[laughter]*

Andreas Roepstorff (15:59): Which, in my naivety, I thought at that time would conflate the pictures...

Wendy Hasenkamp (16:02): Would mess up the data.

Andreas Roepstorff (16:02): What I didn't know of course is that you do statistics and... But the interesting realization was that, you can say, inside of this stimulus-response paradigm that looks automatic, there is a space of agency once you're inside of it. But you can't see that from the outside. It was only because I could tell him that this was at stake, that in a sense you realize this space of agency. So, you can say, that will give you the first- and the third-person.
Andreas Roepstorff (16:30):

But, I think what I really learned from studying these experiments was something else. After I came out again, I discussed it with my anthropology colleagues. One of them said, "Well, that's kind of weird. Here you are, inside a noisy environment, someone comes and tickles you under the foot. Why on earth do you tap the finger?"

Wendy Hasenkamp (16:48): *[laughter]* Because they told me to.

Andreas Roepstorff (16:50): Yes, they told me to, right? That's of course really banal, in the first instance. But, once you think a bit more about it, you realize well, the whole experimental logic relies on something that's not reducible to be first- or third-person. That it's, so to say, embedded into a shared understanding of, "Well, what's it like to be in an experiment? I will do what I'm told," et cetera.

Wendy Hasenkamp (17:09): Right. Which is a very different frame than your normal life.

Andreas Roepstorff (17:12): Which is a very different framework, and which is also a very different framework from the idea of the first-person and the third-person. Because it really suggests that, so much of what our minds are up to, and so much of what we do with our minds, is not something that goes on in an isolation, but really something that comes out of, you can say, these situations of

exchange, of presenting frames of reference, of setting each other up, of negotiating things with each other.

Wendy Hasenkamp ([17:36](#)): Right. So, you're internalizing the situation and responding to it all at once.

Andreas Roepstorff ([17:40](#)): And you're responding to it. In a sense you can say, the only reason that I do a tapping of my finger as a response to the tickling of my foot is that, somehow someone told me and I thought I would be involved with this kind of game here.

([17:54](#)): So, I think it was a very simple experiment, but that kind of idea has really stayed with me ever since — that there is something about minds that certainly can be seen from the outside. But, at least if you're a human mind, most of the times, we're also involved in these incredibly interesting and complex ways of being open to others. And this being open to others shapes, not just our experiences and our brain activities, but also the whole, the way the situation is set up.

Wendy Hasenkamp ([18:24](#)): Yeah. I love the way you described that. Normally, in this field anyway, people talk about first-person and third-person, as if they're separate ways of viewing things. But, what you bring out is a really... They're really tightly interrelated.

([18:39](#)) So, that perspective, that kind of interwoven perspective that you just raised, puts in context a lot of the research that I think of when I think of you — a lot of intersubjective ways that the mind and the brain respond. One study I'm thinking of is the fire-walking study that you did some time ago... Or I'm sure there's others. Do you want to share any examples of studies where you've tried to parse out the ways that interpersonal or cultural effects change the way brains or physiology responds?

Andreas Roepstorff ([19:12](#)): Yeah. So, I'm based at this center called Interacting Minds Centre at Aarhus University. Obviously, we're interested in interaction, not just minds, but also bodies, and brains, and hearts, and all these things. I think what we are becoming increasingly aware is that, if you study mind or the brain as if it was a thing in isolation, it looks like a thing in isolation.
Andreas Roepstorff ([19:35](#)):

But, the moment that you open up to say, "Well, let's bring someone into the table as well," another person, et cetera, it is as if we react to the presence of that other person. And there is kind of an openness in our systems, that relates to it. It's not automatic in the sense that it always happens, but there is like a potential for this way of being engaged with others in situations, or relating to others in ways that we don't really know. So, probably one of the studies I'm very fond of, was designed by an anthropologist, who studied people doing fire-walking across the world.

Wendy Hasenkamp ([20:13](#)): So, this is where people walk on hot coals?

Andreas Roepstorff ([20:16](#)): This is people who walk on hot coals as part of a religious situation. Dimitris Xygalatas came from Greece, and they did it a lot in Greece. But, he also knew this place in Spain where people were involved in it, in a ritual context.

Wendy Hasenkamp ([20:28](#)): Is it something that people have to train up to be able to do?

Andreas Roepstorff ([20:31](#)): Well, this is a whole village kind of... Once a year, they come together and they create this arena, within which they do it. And there, idea that we were interested in exploring, was really an idea that Dimitris brought forward to say, "Well, does that do something to other people, that they see someone doing this kind of dramatic feat?" And then, what we did was to bring some heart rate

monitors, just to see what happens to the heart rhythms of someone who walks on coal, and then what happens to the heart rhythm of someone who watches it.

(21:04) And maybe not surprisingly, before you have to go on burning coal, your pulse just shoots up. But, what was maybe more surprising was that, when we looked in the data at some of the relatives as well, who were not going to walk on burning coal, we saw almost similar patterns in them, although they had never done it. So in a sense, it's as if, just sharing the anticipation of what is going to happen next, is something that need not only happen in you, but can also happen in the people that you know, who this is going to go through. You can say, this is kind of a resonance system. We don't know what kind of mechanism — heart rhythm is a very basic way to look at it. But, I guess it suggests this kind of openness, in which we're not just our own experiences, but we also share the experiences of others.

(21:50) And in terms of rituals, and that was anthropologically kind of interesting and a classic story, well you could say that persons who were walking on burning coals were not just doing it for themselves, but they're in a sense also engaging with the rest of the community in doing it. Once we looked at the data, we could see that the difference in how the ritual structured the heart rates of people, was not between fire-walkers and not fire-walkers. But it was really about those people who came from the village, and then your tourists in town who had no affiliation with the ritual, et cetera.

Wendy Hasenkamp (22:21): Oh, okay. So, the people who were close with the fire-walkers, they were affected, but the people who didn't know them were not?

Andreas Roepstorff (22:27): They were not affected to the same degree. When some of our clever friends did clever statistics on it, we could tell differences between these two sets. Again, suggesting that the capacity might be there automatically, but it requires something else. It might require a sense of connectedness, a sense of all these other things. So, that kind of openness to the world, that seems to be what it is to be human, is something that I guess we've become deeply inspired by. And it works at a body level, it works at a language level in terms of instructions, all these things.

Wendy Hasenkamp (23:03): Yeah. Fascinating. Are you familiar with the work of Jim Coan?

Andreas Roepstorff (23:07): No.

Wendy Hasenkamp (23:07): Okay. So, he is working on a set of ideas, which he calls Social Baseline Theory, which is basically viewing social connection as a way of sharing biological resources. So, he does a lot of work on handholding, under threat stimuli in the scanner, and seeing how holding the hand of someone you trust will reduce the activation in the brain in threat systems. But, what's really unique is, he's brought about the idea of flipping this such that, it's not that holding a hand will reduce a raised level, but in fact, being alone is an unusual state, and an increased threat level to begin with. Whereas, the social connection is actually the baseline of how we're designed to operate.

Andreas Roepstorff (23:55): That would make a lot of sense.

Wendy Hasenkamp (23:56): Yeah, no, it just... I hadn't thought about the fire-walking study in that context, but it's almost like a physiological evidence of this shared resources. Like, the people who are close with the people who are about to undergo the stimulus, are almost like... using their energy to help or something.

Andreas Roepstorff (24:16): Yes. In a sense that, you're in it with them, right? You share this kind of experiential space, yeah.

Wendy Hasenkamp (24:20): Yeah, exactly. In a very real, energetic way.

(24:21) – *musical interlude* –

Wendy Hasenkamp (24:33): So, how does all of this play into the contemplative space?

Andreas Roepstorff (24:39): So when we first started being interested in contemplative work, I worked on the really naive and stupid assumption that it was all about being in isolation with the world, and this is about retracting in. And then, the moment, of course, that you take part in almost any kind of contemplative activity, you realize that the same things are at stake there. That in almost every situation, that something that goes on in a community, there is a relation to a teacher, there is a relation to other people who are meditating along. There are just the simple things as the instructions that you have been given as, "Try to do these things, try to do something else." Which, I think has been... It's only now that we are really getting an understanding of the degree to which contemplative practice is also a cultural and a social activity. And the resources for it, and the tools you get are not just something that you find in yourself. It's also something you find in others.

(25:32) So, we were just in this week here spending a few days with a lot of people who are good at meditating, and some people who were very good at doing phenomenological interviews. But, the very interesting experience was that, the moment you direct your attention to it, it becomes obvious that just a small thing like the instructions that you are given in order to open up a particularly experiential space, just radically sets you off for what it is that you're looking for. And small changes to these instructions configures it completely differently.

Wendy Hasenkamp (26:06): Do you want to give an example?

Andreas Roepstorff (26:10): Yeah, I can give an example. We had a very interesting example where, we were told to do just an ordinary — pay attention to your breath, and then notice whenever there's a distraction, return to your breath. Absolutely standard instruction. Then, we were told that we should stop when we had a particularly good distraction, or noticeable distraction, because that was what we would be interviewed about. And my own experience was that, that whole meditation became a meditation on distraction. Because I constantly had not just the breath, but also that kind of idea — is this distraction? Which is, I'm thinking about the distraction. Is that a good distraction or not? Does this count, and this is a distraction?

(26:53) So, in very subtle ways, you could see that this strange configuration just came about by a certain hint to say, "Well, maybe this is how you should let your mind explore itself right now." And in my case, the good distraction became the moment when I lost focus on my breath and the distractions, and then I realized, "Oh, this is a good distraction!" But it took forever, because keeping these things in parallel just seemed to work it out beautifully. And the other side you can say, of this intersubjectivity or communicative aspect is that, we worked with people who are very good at doing these microphenomenological interviews.

Wendy Hasenkamp (27:34): Yeah, can you describe what that is for our listeners?

Andreas Roepstorff (27:37): Yeah. It's kind of, on the surface, a relatively simple interview technique, where someone will just ask into an experience you have just had, and the trick on the side of the experimenter is to try to be extremely concrete, and keep you to be concrete about your experiences.

And then, they will repeat back, when you say, "So I experienced this," and they'll say, "So, you did experience that?" Then you say, "Well, no that was not quite what I experienced. It was something else."

(28:07) What is so interesting about being interviewed in this method is that, one suddenly realizes that, inside of just like a single second, it is as if there is so much going on at the same time, that you don't pay attention to at the moment. But, you can actually go back to it again. It's like revisiting a landscape, which must've been there all the time. And in a very interesting way, one seems to be quite sensitive as to whether that experience one is now exploring is something that's kind of made up in the interview, or whether it was something that was already there.

(28:40) I don't know exactly how you can tell the difference, but it really feels like this kind of going back and revisiting. Sometimes you can see that, now, this particular experience is different from the one I had before, so the interview has changed it. But, the first realization is that language, and being with another person that can ask that language and become a mirror to yourself, is an extremely powerful way to open up for that experiential space that you otherwise did not get any kind of access to.

Wendy Hasenkamp (29:08): Yeah. Do you have any examples you can think of, of something that you were not aware of as it was happening, but then through this interview process, became clearer?

Andreas Roepstorff (29:20): Hmm, yes. So, the first experiment we did here, was this idea of paying attention to your breath, and then notice it when there was a distraction. And I was kind of struggling with these distractions that kept popping up. And when I then revisited them again, it was a very strange experience, because it was like a landscape, a topology. Where it felt as if the breath in itself was kind of a wave that was just rolling over sand. And this moment that the wave withdrew again, this thought about, "Is this a good distraction?" would just be almost growing up from the sand, then the wave would come back again. That was this extremely interesting experience of, the breath doing one thing, and those thoughts coming up doing another thing.

Wendy Hasenkamp (30:13): In kind of alternation with the breath.

Andreas Roepstorff (30:15): In alternation with each other. And that strange experience that, the moment that I was in between an in-breath and an out-breath, it was as if there was a break where this thought could just pop up, and then back would come the breath again, and would cover it. It would try to come up, but it didn't have a chance, and then it would come up again. And I never thought of these processes of thought in these instances, that it was like, my agency was doing the wavy thing, right? And then these thoughts were just having a life of their own, that I couldn't control. And they were more revealed some times than at other times. And of course, this is not how you think of your thoughts, right? That they are a wave and a flower that grows. But, it was a very intense exploration of it. And once that — you can say metaphor or not... observation probably — stays with you, suddenly, I've noticed that there are other instances where these things grow up and there are things you can control in relationship to them, right?

(31:10) It could also be other situations. We had another very interesting exercise, where we were given a strange poem by the German poet Rilke, and it started out with the word "bewildered," and we were not told what to do with it. I was extremely bewildered at first. And the first long meditation was all a meditation about being bewildered. Then, it had some sections which was about, what's it like to be in a medium, in a sphere where you don't belong? And the metaphor was a bat that should not be flying, and is yet flying.

(31:45) Then at some point, at the end of the meditation — and particularly after hearing, exploring that meditation or that experience through the interview — I realized that I had kind of come to terms inside the poem, with an idea of myself being in a medium where I didn't belong, but I actually belonged there. And that was soothing.

(32:09) When I then returned again to that bewildering... Where then, at first going back to it in this interview, "bewildered" was like a text that was standing in front of me. Very clear letters, I could tell they were... I could see the word, and the size, and the font, and they were capital, and sans serif, and all that. It's very strangely concrete. And then, at some point when I revisited them, it was as if they melted. The letters were kind of... The word wasn't there any longer. I could still see where the B was melting into the E and into the W. But, it was that idea of "bewildered" being the key focus, just wasn't important any longer. Which was kind of a really strange process of revisiting an experience that was there. It also coincided with a sense of, "Oh yeah, this might be what the poem is about and what I can do with it."

(33:05) So, you can go on about these experiences — in themselves, they feel maybe interesting for you in the moment. But, I think what the methodology really brings about is a powerful tool to open up a space where you can revisit those particular experiences. And one can see how they come about, and maybe how they're changed and how they're shaped as well.

Wendy Hasenkamp (33:26): Yeah. I was going to say, this is an example — I would have thought this is an example — of a kind of "pure" first-person investigation, of really subjective experience. But, just reflecting on what you said earlier, it is an inter-subjective experience also, based on the person who's interviewing you, and that's shaping perhaps your reflection, and all of that.

Andreas Roepstorff (33:48): And this is a very interesting case of almost like a minimal instance of intersubjectivity. Because part of what you are trained in when you learn the method is, not to give any hints about the interpretation to the person being interviewed, but just repeat what person says again. But, it is as if just having the other person as a mirror, and sending what you say back again, that reflection via the other one, makes you see, "No, it's not the same signal that comes back and forth."

Wendy Hasenkamp (34:18): Right. Even though you just said it.

Andreas Roepstorff (34:19): Even though I just said it, and then it comes back again... and then it's not quite the same. So, there is this very interesting "looping" via the other, that if you looked at it as, "We're just sending out at a signal, and I get the signal back again, nothing happens." But, when you realize that it's a matter of an experience that gets changed into language, that's reflected through the subjectivity of another person and comes back again, then suddenly it seems to do very, very interesting things.

Wendy Hasenkamp (34:45): Yeah. It really highlights the inherent challenges of trying to get a subjective experience at all.

Andreas Roepstorff (34:51): It does. It does. And methodologically it's... you know, what do we do with it?

Wendy Hasenkamp (34:54): That was my next question, is there work that's trying to incorporate this kind of data with traditional, more "third-person" or objective measures?

Andreas Roepstorff (35:06): So we have a research project on play, play and learning, at my research center. One of my colleagues who has trained a lot in the microphenomenology method, she's very interested in this experience of playfulness. And she used some simple experiments to try to explore,

"Well, what is this experience of playfulness? What characterizes it?" And that involves some Lego bricks, and then people who were told to build ducks out of Lego bricks...

Wendy Hasenkamp (35:34): Ducks?

Andreas Roepstorff (35:35): Ducks. (For all sorts of reasons.) Either in a playful mode, or more in a production line, work-like way. And then she interviewed people about, "What was it like?" And very interestingly, when people talked about that experience of the playfulness, they ticked all the boxes of being internally motivated. They didn't know the theory about it, but those were the things that came about.

(35:58) And something very beautiful came about as well was that, in a sense, through the process of acting playful with the material, they became surprised by what they were doing themselves. So they created something that they had not anticipated. And that surprise, in a sense, almost came back from the material, from realizing combinations that you couldn't foresee the consequences of — and suddenly they're there. They become a mirror of your productivity, which is different from what you expect. People would often feel, "Well, actually this was not too bad. This was better than I anticipated." And that gives a sense of empowerment, that then allows them to say, "Well, let me explore some more." And then it can come back again.

(36:38) So, it's almost as if here you enter into a dialogical process with the material itself. Right? That this "just trying things out," that seems to be involved in playfulness, means that there is certainly something there, which I did, but I didn't do it (in the sense that I wanted it to look like that). And once it is there, that can empower, and allows you to explore more, and you have a very interesting circle going.

Wendy Hasenkamp (37:02): Yeah, the unexpected.

Andreas Roepstorff (37:02): So, that would be an instance where, to my knowledge, this is the first attempt of getting at, "Well, what is that feeling of playfulness? Why could it actually be allowing you to explore something? Why might it be intrinsically rewarding?" Because, we can see all of the classical psychological features. They just come out of people's revisiting, "What was it like to be doing this?" Surprise, joy, feeling of agency, all these things here, right?

Wendy Hasenkamp (37:29): Yeah. A couple of times as we've been talking, the word anticipation has come up. Or unexpected, things like that. Which is making me think of predictive models of mind. I'm just wondering how that plays in... What you were just saying about play, and an experience of something unexpected happening, maybe being more salient or outside of our normal mode of prediction. Can you say a little bit about how the mind is viewed as a prediction machine, and how that might interweave here?

Andreas Roepstorff (38:04): Sure. So in our work, like almost everyone else in the field these days, we are very inspired by all of the predictive mind or predictive coding models that are essentially saying that, in the most gross formulation — rather than the brain is about representing stuff on the outside, then it's really about kind of predicting which sensory inputs that might come next. Because, the prediction will be... If in a sense, if you have predicted what comes, this is the sense that the world is understood, right? And a failure to predict, is a sense that whatever happens in the world is not understood.

Wendy Hasenkamp (38:39): And the predictions come from a model that's internal?

Andreas Roepstorff (38:42): The predictions comes from some kind of a model, that both takes into account what is expected to happen in the world, and what are the expected outcomes of my actions, and how do these things feed into each other? The underlying idea is that these things work at all levels in a hierarchical system, from very basic perception, and all the way up to cognitive models.

(39:03) In the later versions of these models here, one strong assumption is that, what organisms are trying to do, is to reduce the uncertainty around them. Because, the more they can reduce this kind of uncertainty, the better they are able to... it's safer, or control their environment, all these things. And some have said that, this could lead you to kind of a "dark room" problem — that the best thing for an organism is to stay in a corner in a dark room, because then, nothing's gonna happen.

Wendy Hasenkamp (39:26): Oh yeah, then you can just predict that nothing will happen, and you're safe.

Andreas Roepstorff (39:30): So, there's kind of and inherent tension, to it. Now I think, even though we were really very inspired by the people developing these models, there seems to be something that doesn't quite fit a lot of the stuff that we see. For instance, the way that we think about play currently is to say, well maybe play is a very interesting phenomenon, because it seems to be about setting up a situation where surprises are going to be generated. And once they're generated, then you can do something with them.

(39:59) So, it's almost like an activity that has as, if not a main purpose, then certainly a purpose or a side effect, that these surprises are constantly going to happen. And that allows me to do something with them, and deal with them. And, depending on how skilled you are, depending on all sorts of other things, these surprises might be quite radical. And in other circumstances, they can seem from the outside to be minimal. But there is this element of bringing yourself into situations where surprises happen, because it actually allows you to do something with it.

Wendy Hasenkamp (40:32): Right. That's fascinating, because that would be... The theories would say that, what we're trying to do is reduce the surprise element, because this is the uncertainty, or things that are unpredicted. But this is like a special case where you're making it safe and encouraged, that surprises will happen.

Andreas Roepstorff (40:46): Which, of course, is what all classical theories of play say. Right? That play is about setting up this particular sort of same framework, within which different things happen. And in particular, the intersubjective play is extremely interesting there. Because there's something about sending something out to the other, that is inherently unpredictable when it comes back again, right?

(41:07) So in a sense, if we go with that idea, we as humans are not just very good at reducing uncertainty around ourselves, but also create these situations where uncertainties can be explored, and where you can learn from them, and where you might be able to negotiate them with others.

Wendy Hasenkamp (41:22): Yeah. Because play is also really essential for learning, right?

Andreas Roepstorff (41:25): Absolutely. It seems like this way of, in a sense, going in an "explore" mode, is essential to it. But, it probably requires the possibility to resolve it — and then, we currently think for a lot of learning purposes also, that reflection comes in. That you actually have ways of saying, "Well, what was it that happened there?" So, a lot of teaching situations, you're asked to reflect, and if you were not surprised, there's not a lot to reflect on, right? It's just not very interesting. But, it seems precisely to be those situations where you want to go, "What was that?" And that's another area where

intersubjectivity, our ability to come up with solutions together, is amazing. Because, you can suddenly via the help of the other person, or another person, realize, "Well, that was what it was about." So, the resolution can come post hoc.

(42:13) And in a similar way, a lot of the very advanced meditators — seen from the outside, nothing much happens, right? They sit still. And yet, if you look at your bodies or if you meditate yourself and look at your own body, there's this strange experience of all sorts of surprising things happening in your body at the same time, that seems to feel everything, and can be scary at times. You can see your heart beating. So, it's almost as if that kind of... or some forms of contemplative practices, is also opening up to a surprising internal landscape, that seems to have a life of its own. Once you allow yourself to look at it, that these things are just popping up all the time.

Wendy Hasenkamp (42:55): Yeah. And I think, what I think about with prediction then meditative practice is, it seems to be something really important about not responding.

Andreas Roepstorff (43:05): Yeah. Again, if we stay within these hierarchical predictive models, and the hierarchical seems to be very important, that very classic gesture that you confront something in the meditation — something occurs in your meditation, and then you realize that, "Well, it's just a thought." Right? You could say, this shift from the thought being what completely fills you up, to being able to, from somewhere else (wherever that is, in a hierarchy or a space, or whatever it is) just say, "Well, that which used to be everything, from where I look at it now, I can see that this is just a thought, then I could let it go."

Wendy Hasenkamp (43:42): Yeah. So-called dereification.

Andreas Roepstorff (43:44): That kind of a dereification, again, is something that might be playing itself out, inside one of these strange hierarchies... we're seeing from something else, and what was reality is just a model. That's kind of a meta-model that allows one to see this. And these kinds of shifts are very interesting. So I have a PhD student at our research center, she studies people who have suffered from depression, and look at what MBCT seems to be doing with them.

Wendy Hasenkamp (44:10): Mindfulness-Based Cognitive Therapy.

Andreas Roepstorff (44:12): Mindfulness-Based Cognitive Therapy, right. And one of the ideas seemed to be that, what Mindfulness Based Cognitive Therapy might allow you to do is that, the moment that you get into rumination, the moment that thoughts just seem to be coming back to you again and again, and you can't let go of them, then with some kind of a mindfulness training or MBCT training, it's possible to say, "Well, it is just a thought." You can step out of it. You might step into your body, you might do something else. And that, in interesting ways, allows it to dissolve. And just looking at her very first data, it seems that, indeed on all the clinical measures, her intervention has worked. And where we see neural effects of the intervention, is precisely when they're asked to ruminate in the scanner. So, in that situation, where something is potentially nagging, they can do stuff that they couldn't do previously.

Wendy Hasenkamp (45:00): Yeah. That's interesting because, one of the most consistent findings in the field is that Mindfulness-Based Cognitive Therapy can be effective for depression — particularly depression as marked by this kind of rumination. So, that's great that you're starting to look at the evidence also neurally, about how that's working.

Andreas Roepstorff (45:21): And going back to what we discussed previously... Part of what it seems to do, a lot of these contemplative practices is that, one suddenly realizes that, actually between stimulus

and response, there is a space that can be explored. There is a space that can be different, that can be looked at differently. So, if we go with that idea that, one of the reasons why MBCT might help people with depression is that these ruminative thoughts that tend to take over — that there is a way to say that, that which used to be all of it, can just be part of what's there, and then let go. That general model is that, it's as if in between stimulus and response, there is a space, where actually there's room for some kind of an action, either on your own behalf or on behalf of your body or something else. But, that kind of automation or immediacy, seems not to be there in reality.

(46:14) And that's in fact, almost like the experiment we explored previously, right? Where, seen from the outside, it looks as if there is a direct link between stimulus-response — someone being tickled under the foot, and tapping as a response. But, once you're inside it, you realize that actually, there's a whole space of action. There is a mental space there. And at least for me, this being in touch with contemplative practices (at a very primitive and premature level), has in a sense allowed me to begin to explore, well, between the sensations and the actions is a space that's modulated in so many different ways. And that in itself is just an amazing discovery.

Wendy Hasenkamp (46:58): Yeah, wow. So, what do you think are the most important areas or directions for the field to move now?

Andreas Roepstorff (47:07): So, I don't know where the field is going, but what I can see where my own interests [crosstalk]. Right now, exploring these tools to say, "Well, how do we get at the experiential?" It's just a whole new world that opens up. And, trying to see, are there ways that we can... not triangulate, but match up, or parallel with the ways in which we can measure this from the outside — that's obviously an interesting and important field.

(47:38) Now, the other field that I'm really interested in these days, and I think it has a contemplative dimension to it, has to do with, are there ways that we can set up these shared reflective spaces together? Are there particular ways in which you can, in an embodied way, realize that, "Something goes on in me that's not necessarily the same that goes on in others."? And once you realize that, creates possibilities to say, "Well, here is a space that we can share together, where we can explore both the differences and the similarities."

(48:10) And I think part of that is to become aware of the way that your own experiences are made up. But also become aware of the fact that other people might be moving in the same space, or experiencing it, or acting in it, quite differently. And once that becomes an embodied experience, both your own way of doing it and the other person's ways of doing it, we get these kinds of very interesting mirror effects again, it seems, that might have potential for actually creating spaces to not just feel them, but also share them and bring them out to each other. So, currently, I think that ability to figure out — how do we create experiences that could be shared, and how do we create not just a language, but also the instructions, or the settings within which we can share them — that to me is the most interesting right now.

Wendy Hasenkamp (49:03): Yeah, that seems hugely valuable. Well, thank you for your work, and thank you so much for taking the time to talk with us today.

Andreas Roepstorff (49:10): It's been a pleasure, Wendy.

Outro – Wendy Hasenkamp (49:16): *This episode was edited and produced by me and Phil Walker. Music on the show is from Blue Dot Sessions and Universal. Show notes and resources for this and other episodes, can be found at podcast.mindandlife.org. If you enjoyed this episode, please rate and review us on iTunes, and share it with a friend. If something in this conversation sparked insight for you, we'd love to know about it. You can send an email or voice memo to podcast@mindandlife.org. Mind & Life is a production of the Mind & Life Institute. Visit us at mindandlife.org, where you can learn more about how we bridge science and contemplative wisdom to foster insight and inspire action towards flourishing. There you can also support our work, including this podcast.*