Minds Almost Meeting: The Two Cultures

Season 8, Episode 11.

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May 2, 2024

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Imagine two smart curious friendly and basically truth-seeking people, but from very different intellectual traditions. Traditions with different tools, priorities, and ground rules. What would they discuss? Would they talk past each other? Make any progress? Would anyone want to hear them? Economist Robin Hanson and philosopher Agnes Callard decided to find out.

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Robin: Hello, Agnes.
Agnes: Hi, Robin. So today we are going to talk about the deep divide between us. Um, we each belong to a different culture. Uh, CP snow called these the two cultures. Uh, I am part of, well, he kind of calls it like poet and literary culture, but we're going to say humanities. Let's let's do humane.
Robin: I'm going to suggest a different name for them, but.
Agnes: Okay. Okay. This is just, he, he calls it that like literary, uh, he, he, he, he sciences and literary is, is hidden. He recoils against the idea that the literary gets the title of intellectual, right? So I shouldn't call it an intellectual because they're both intellectuals. There are two kinds of intellectuals, the literary kind and the scientific kind. Okay, go. You can give your gloss on it.
Robin: Well, I mean, the first thing, the higher level thing to notice here is there's these two groups that go by many different names. And C.P. Snow had this essay describing them in 1959. It was, by one account, one of the hundred most influential books, you know, since of the second half of the 20th century. It's a really short essay, it doesn't say very much, but it's so highly cited, I would guess, just because it points to a division that people can instantly recognize, even if they don't know how to name it or characterize it. And that makes it interesting, especially to us if we're on different sides of this divide. Right. I've been thinking about related issues for a while, and so I have a candidate explanation that I'm not that confident in, but as a candidate way to characterize the difference. But there's a bunch of correlated differences.
Agnes: Okay, but I actually don't think we should jump to that.
Robin: Okay.
Agnes: I think we should say a little bit more. We're not going to be able to test your theory if we don't have some more data, right? Right. His thought is that there are there are people who are interested in fine art like painting and opera and literature. They maybe are producing it or maybe they were going to extend it to people like me who study it. And that is one group. And he characterizes this group as kind of snobby. and they look down, they both look down on each other, but snobbery

is peculiar to the literary types. They're Luddites, they are traditionalists, and they don't fundamentally believe that the condition of humanity can be improved. The scientists are I think that's the fundamental way that he characterizes them, is as people who have a hope that the social condition of man can be improved. There's something a little bit odd about thinking that's what mathematicians and physicists are up to, but OK. They are the humanists will call them narrow. They will call the humanists scientifically illiterate. They. Yeah, OK, so those are some first thoughts, so just restating some of the stuff, I think C.P.

Robin: Snow, part of the reason you made a lot of controversy here is he tried to sort of as if he was neutral, neutrally presenting two sides, but he really took one side. And so many of these descriptors aren't really that central to this, but they were descriptors that would inflame the discussion at the time because they were kind of favoring his side, at least in the eyes of many at the time.

Agnes: I disagree that that's the main he may have somewhat favored his side. I take the main thrust of his piece to be somehow like, can't we all just get along? I.E., these two cultures should really be one big culture. That's his thesis. And I would like to discuss that thesis because it's not at all obvious to me that that's true. Right.

Robin: But yeah, he may have painted his side in a slightly more positive light, but... Right, I just mean that these features you've listed are central to his essay, but I don't see them as quite so central to The Divide.

Agnes: Okay, so give me some features that you think are central to The Divide.

Robin: Other people have noticed that in IQ studies, there are two main sub-factors of IQ. One is verbal fluency, and the other is shape rotation. There's even a standard internet thing of word cells and shape rotators these days, and they tend to correspond to these sides. The shape-retainers tend to be more STEM-like, that is science, technology, engineering, mathematics. And the other side tends to be less STEM. They're the sort of people who resent STEM or resist STEM or want to carve out in the world a place other than STEM. And they often complain that STEM takes over too much attention and gets too much funding. There's a guy, Byron Cohen, who has a concept where he measures two kinds of things. There's a degree of empathy and a degree of systems thinking. And he says that these two kinds of people, men tend to be more systems thinking, women tend to be more empathizers, and that people who are autistic tend to be extremely systems thinkers. So there's more autism in the one side. I, I, I tend to think that more distinctive thing is that you know the stem people, they tend to use numbers more, they tend to be able to evaluate each other more reliably they can. test each other more reliably and rank each other. They can agree more easily in the sense that they have more standard ways to calculate things and more standard ways to evaluate things. And so they can make a larger system of division of labor where different people, different things, and they all fit into a more of an accepted structure. And they feel more they have progress, at least in their area, that they can identify how what they've been doing is getting better. And they can measure what they're doing better. That's part of using numbers more. And the other side often says,

well, they don't know as much as they think. And their advances are more limited to a certain area. And they're overestimating the overall value of what they do. And that the people on the shape rotator side, they tend to think they have clearer definitions of things that are more agreed on. And they want to just limit themselves to the kind of words that are all clear. wary of and suspicious of the other side who tend to use vaguer terms. They call them bullshitty, call them vaguely on purpose. They tend to accuse them of being more political and trying to be more evasive in their claims and be harder to test and verify. but on the other side the word cells tend to say well your words are very limiting and you're making a whole bunch of assumptions and we're trying to grapple with the real problems that are hard to pin down but nevertheless important and we're going to grapple with the vagueness of all the things we feel and say and that they also tend to focus more on values and feelings and aesthetics and the mix of those things that they think are very important and neglected by the STEM side. So these are other correlates that seem to be more central to the division of these two cultures, as Snow calls them.

Agnes: I'm not sure I see. So the literary side has got the words and it's got the empathy. How are those things related?

Robin: Well, that's the interesting question for any of these axis is, Any axis is going to be defined and described by a bunch of correlates. And then one of the key questions is, why are they correlated? They wouldn't have to be. That is, it wouldn't have to be an axis like this if all these various components or correlates weren't actually correlated with each other. And of course, some of them might be accidentally thrown in with the rest and not actually be very correlated with them. And you might mistakenly characterize one of these axes by throwing in something that's not very central to it and somewhat distracting from whatever the core of it is.

Agnes: So let me say something that I think is very characteristic and somewhat marked about the literary side, the humanistic side, is you're going to hear the word interdisciplinarity a lot if you hang out around humanists. I don't think you hear it that much around physicists or mathematicians. The mathematicians aren't like, what if we tried to do something with the poets or whatever? I think probably mostly they don't care. And so there's a sense in which the literary people often call the science people narrow. And I think that they don't just mean you're not doing our stuff. I think they mean you're sort of content to burrow into a little hole and stay in that little hole. And you're not that worried.

Robin: Well, that's what I meant by the division of labor, is what I said. that there's more of a division of labor, more dividing up tasks into smaller things and people focusing on their smaller area via the way they divided things up. They do that in part because they think they have a terminology or structure that's more reliable according to which they can divide things up and they can trust that structure to reliably connect them when they need to. Then on the other side, people less have a structure they share by which they could divide things up reliably and they're less

confident they would know how to pull things back together if the different parts did different things.

Agnes: Right. And so it's going to be sort of characteristic of whatever, like math. I mean, there are a lot of different ways to use math and there are a lot of different kinds of formal systems and people that can work with one formal system. That doesn't mean they can work with another one. And so the science side is going to be characterized by these sort of like specific languages that people are able to communicate in because the labor has been divided up, and they're going to communicate with each other in that part. And so that does suggest they're going to be narrower.

Robin: That is, they are not- Although in academia, all the non-STEM people do organize into particular disciplines and particular sub-disciplines and teach very specific classes. And they do manage to produce a large, elaborate structure of specialization. I guess they just don't believe in it as much.

Agnes: But they also talk a lot about interdisciplinarity. And they try to do interdisciplinarity. I don't know how good it is, how much success they have, but the point is that is something they care about and they try to do. And so they're balancing the subdivisions against this other thing. OK.

Robin: So, I mean, you and I aren't completely representative of either of these sides. Like most of philosophy is somewhat divided up. And so philosophers are some sense more interacting with the other side because philosophy itself is divided up in this way. You know, you aren't representative of philosophers necessarily. You often do more public intellectual writing. And so that's going to pull you more to this encompassing intuitive sort of stuff. I'm more of a polymath so that means I less specialize and try to learn more of these areas and pull them together and so I'm not going to be so typical there. And I also, you know, try to deal with various things where you have vague words to describe things and where ordinary STEM people go, oh, that's just all a big messy mess.

Agnes: Like the two cultures.

Robin: For example, yes.

Agnes: Yeah. Okay. Right. So we're imperfect representatives of our various groups.

Robin: Now, is this a good time for me to just present my main theory?

Agnes: You can say your theory now.

Robin: OK, it's a short theory. So I mean, just looking at all these correlates, it seems to me that pretty much all of them are captured by the one what I would suggest as the key observation is that the STEM people have the systems of thought, things like decision theory or physics or economic. um, supply and demand, et cetera. And that these systems are the thing that lets them have more precise terminology, agree more, uh, specialize more. Um, and you know, all the other features here are predicted by them having more of these things, relying on more of them and then focusing on the areas where they work better.

Agnes: Right.

Robin: And that seems to account for most of these differences. And you might then, under that theory, they both have a place, role to play. I mean, it says, well, yes, there are places where the systems work well and places where they don't work so well. And you'd want people looking at both. And one of the most striking features, I think, of this dichotomy, I mean, there's lots of dichotomies in the world, you know, left-handed, right-handed, short, tall, male, female, et cetera. There's a lot of hostility along this dimension. entirely sure I understand why compared to all the other dimensions we can mention. If I do a post on this, all of a sudden a bunch of people say, and you're sure being nice to that side, you should just lay into them and tell them how bad wrong they are. Because people feel strongly that the other side is just making big, huge mistakes and getting too much power and misleading the world in huge ways. And that's something to grapple with here.
Agnes: I know, I was kind of hoping we were going to fight over this.
Robin: Well, we may.
Agnes: Okay. Well, maybe our fight can begin with me trying to subsume your definition inside of my definition, your way of understanding the distinction in terms of... So I think, I don't disagree with your way of saying that the one side uses systems and the others doesn't. But your way of understanding the distinction, in a way, creates the throw weight on one side, namely, well, there's the kind that uses the systems, and then there's the other one that's defined by that.
Robin: If the systems are crappy, that's not necessarily a praise of the systems.
Agnes: I'm not saying it's a praise. I'm saying in any distinction, you can decide which half you're going to actually do the defining in, and that's what you've done. You've said the other one is not the first one. I think there's actually a way of producing a distinction here. I don't know if it works, but if it works, it's not just by saying A and not A. It's actually just two distinct things. And it would help us, it would involve giving a certain characterization of what a system is, or it does some of the work, because the question raised by your way of putting this is like, what is a system? And that's a hard question to answer. So I wanna suggest that the science people are problem solvers, and the literary people are question answerers, and systems are, ways of addressing problems. So a problem is like you're doing something. You're trying to get across the city or whatever. And then there's something in your way, an obstacle. A problem is an obstacle. Literally, the Greek word problem, if you translate it each part, you get the Latin word obstacle. And an obstacle is your understanding of the obstacle is always going to in some way be posterior to your understanding of possible systems for the removal of an obstacle, right? So if the obstacle is a mountain, or rather your understanding of how you approach the solving of it, if it's a mountain, you wouldn't say, how do I lift up this mountain? That is, you don't pose to yourself the problem, how do I lift this mountain? Because you know you don't have any ways of lifting up mountains. And what you do is you say, how do I go around? Because going around is like a procedure. It's a method. it's a system, in effect, that you know is in place and there are ways of doing it, and then you can deploy that. So the idea of

going around, of going, is available to you antecedently of the problem getting beyond this obstacle. And I think that, so problems only exist if there was something you were doing anyway and then something got in the way of that. But there's lots of that in life. Like, you know, you got hungry or something. That's now a problem, you've got to solve it. Okay, so I think a question is, you might just want to know something. Not because not knowing it gets in the way of something else you were trying to do, but you just want to know it. Why is there something rather than nothing? Or what matters? What's the point of life? What is the value of a human life? What should I do with my life? Even something like how do plants grow? You could have that as a question, I think. You could have it as a problem. It could be an obstacle in the way of something else you're trying to do, but you could have as a question. And I think when you have a question, you don't, There's no guarantee that there's any kind of method you're going to have for answering this question. That is, the question comes first. So I think that in the beginning, 500 BC, not really the beginning, there were mostly just questions. There weren't intellectual pursuits. And that was called philosophy. And then basically, a bunch of tools came into place And then philosophy becomes science through the advent of these tools when we convert questions into problems. And a problem will tend to be, or at least be able to be, well-defined. So you can really say very specifically what is going to count as the solution to this problem. A question is typically not going to be well-defined. You don't know what its answer is going to look like until you have the answer. You're eager to talk.

Robin: That sounds to me like some questions can be better framed in terms of a system. That is, the better you can frame a question in a system, the more it looks to you like a problem rather than a question, because to you- Some questions can be converted into problems, and when they can, we're inclined to do so.

Agnes: Yes.

Robin: But I would say the key element of the conversion of a question to a problem is merely the embedding of it in a system, such that the system seems to capture pretty much everything.

Agnes: I agree. I am agreeing with that.

Robin: It's not about the shared purpose or whatever. It's just about the embedding.

Agnes: So the purpose doesn't matter. So what I'm saying is there's a specific, I went one step beyond that in my explanation. I explained what the role of the system is. Namely, the system is a method for solving the problem that's available to you independently of the problem showing up. That is, you have the method before there's a problem. That's what a system is.

Robin: Imagine someone poses the problem, what's the largest known prime number? Now, asking the question that way doesn't tell you how to solve it, but it does tell you exactly what the question means and there's a sense in which it becomes there for a problem because using the language of prime numbers is such a strong structural system that basically everything about that question is now set in the system. So you can now just use the system and think about that, and we don't need extra system

thinking really to address this question, which isn't a problem in the sense of knowing how to solve it. It's a question in the sense of it's a thing you might want to ask, but I would say it's very structural, so it doesn't feel like the other sort of questions you would think of, which are sort of more open-ended. You're not really sure exactly what the question is and how you might do it.

Agnes: OK, I think that if we want to go to the territory where it's going to become hardest to distinguish questions from problems, we're going to be in math. And so I think it's not a great place to start. So there's a way in which it's not always easy to distinguish questions from problems. And one reason why it's not easy, why there's a little bit of a tendency to collapse, Every question, in a way, is the problem of being annoyed by this question and wanting to move on. And so every question can, in some sense, be converted into that problem. But when you ask, what's the largest prime number? I mean, known. What's the largest known prime? OK. That's because I didn't hear that question. It could just be a bad question in the sense that it contains a presupposition. So I think, I mean, the question, what's the largest noon prime number? I'm not sure that makes sense as a question.

Robin: I mean, you can actually look it up on Google, actually. It's the sort of question you could just look up the answer to.

Agnes: But how do we know there isn't someone hidden somewhere who found a bigger one?

Robin: Right, so the known is collectively known. That's how, if you talked about what's the oldest known shovel or something.

Agnes: OK, so it's like you're asking, yeah, what's the oldest man on Earth as far as we know or something?

Robin: Right, exactly. The oldest known person with a whistle or something.

Agnes: I guess there, OK, now that we've specified this question, which is of the caliber of what's the oldest person living as far as Google knows or something.

Robin: Right.

Agnes: I would say I want to know why you want to know that. Now, there's two possible reasons you might want to know it. You might want to know it because there's some reason why you need to use that piece of information. You've got to put it on a test or your writing report or whatever. Or you might just be curious. That is, you have an itch, the itch of curiosity. That itch is a problem for you. You can't go on doing other things until you've scratched that itch and you'll scratch it by looking it up. And both of those ways are ways of saying, this question is really a problem in disguise. And I do think that just as you can take a question and convert it into a problem, you can take a problem and make it sound like a question when it really isn't one.

Robin: OK, but if you distinguish these two reasons for asking this question, Which reason you have isn't going to be very diagnostic of whether you're on one side of the two cultures division of CPCL.

Agnes: That's correct. As I said, they both are problems. Yes. So I agree with you. And I think that it's characteristic of problems that it doesn't matter why you have this problem. But there does have to be a why. But it doesn't matter why. People who have the problem for a variety of different reasons could all work together. And that's exactly because the method is independent of why the problem arose. Right.
Robin: But if we're looking to try to characterize this two cultures distinction saying what are the typical differences on these differences sides and what is the underlying cause. Yes, then I'm suggesting that. whether things are problems or questions isn't as diagnostic as whether people have systems they can embed them in, the STEM people are more going to have a system that they use to make sense of the problem or question. And that's the distinctive feature, whereas the other side, they will less have some systems, they will less look for them, they will more struggle with the question or problem without systems.
Agnes: I disagree. And I'm glad we found something we can fight over. So I think that, first of all, I feel the weakness of my own not really being squarely on the literary side. But literary people do have systems. You may not like them. You might not accept them as systems. But for instance, they divide things into time periods and then into sub-time periods. And then they have structures of influence. And all of that is systems.
Robin: I agree. Everybody has some systems to some degree. It's a matter of how strong they are, how structured they are, how much you can rely on them, how far you can go with them. So, you know, everybody, for example, uses simple logic as a system. Almost all fields are willing to use logic as one way to analyze things. And it's a system they can embed things in to make some sense of them.
Agnes: OK, so fine. I mean, I guess I think that what my distinction gives you is kind of the animating spirit of these two things that explains why the one group doesn't use the systems more. It's because they're less guided by the demand to translate something into a problem, which would then allow you to use a system. And they're more guided by there's a fundamental question. And we're going to keep tracking that question, even if we can't talk about it very clearly. And the other group is like, look, we just got to be doing problem solving at all times. Even if the problems aren't important, we just got to be doing problem solving.
Robin: So I agree that the systems side are pretty determined to embed questions in their systems. If they can't embed a question in their system, they're pretty resistant to even accepting it as a question as something worthy of them doing. That's part of how they're so attracted and reliant on systems. They really want to convert a question into one of their systems.
Agnes: Right, but what I'm saying is that these two groups have different motivations and the motivations determine whether or not they're going to use systems. Okay, take the famous line from Noam Chomsky, I think, said that science looks for the keys under the spotlight. So I think that if you're problem solving, say you're problem-solving, you got to find the keys, actually makes total sense to look for them under the streetlight.

If you're not going to see them anywhere else, look first under the streetlight and then maybe think about other different ways of getting into your house that don't involve your keys, because it might be easier than looking for your keys in the dark in the other spots. That is, the person on that side of the culture, on the problem-solving side of culture, is interested in solving the problem of getting back into their house. And at the moment, it looks like that's going to involve finding their keys, but it might not. They're willing to slide on that. They're willing to slide on which problem they're solving. But what they're not willing to slide on is, I'm going to be using problem-solving technique. Whereas suppose that you really cared about those keys. The keys weren't matter. They matter more than anything. You'll spend infinity time looking for those keys. Well, then you're going to track them in the streetlight. You're going to look in the dark. And I think that the other culture is the culture that is going to keep looking for those keys even in the dark. And that's why they're not using systems is because what they're tracking is the keys.

Robin: So this is a characterization that I think objectively favors your side.

Agnes: Naturally. That's what I said, I had to do antidotes. This is how we're fighting.

Robin: But let's take like very basic questions about the universe. Like what was the origin of life? How did it arise? What caused it? Is the universe infinite or finite? I mean, people addressing those questions in their mind are quite willing to go wherever it takes to answer those questions. Have they really converted questions into problems in those cases?

Agnes: I wonder how willing they are to go in all different directions if you actually go to the actual scholars and look at the scope of their research. But in any case, I'm not, you know.

Robin: Show me on the other side a question that they will go farther in answering than these people go to these two questions.

Agnes: It's very hard for me to compare them.

Robin: I mean like more questions like that but I can give you a substantial list of questions that people on the stem side in their mind are willing to go quite a long way to try to answer they search under a quite a wide range of framings and systems to try to address them.

Agnes: I actually think. As you said about how the literary people have systems, but simply to a lesser degree or something, I think that, especially in certain parts of science, the parts that are furthest from practical application and that may verge into philosophy, and that are going to be tolerant of, like, where did life come from? Where they're going to be very tolerant of not having a precise definition of what we mean by life or something. At that point, like, yeah, it's philosophy and it is humanistic.

Robin: The same claim you could just make about the people on the other side, the closer to practical. You have English teachers who are teaching third graders to spell.

Agnes: I agree. I agree.

Robin: They're also looking at problems not questions, right?

Agnes: I agree, but that's what we actually want is a sense that these two groups are, I mean, it's not a very clean division and you're going to have properties of the one showing up on the other all the time. And so what we're going to want to do is get at what is the heart of it. I do think that the thing Snow thinks is the heart of it, which I think is interesting and provocative, is really this point about progress. That is, he thinks that basically you futurists, I mean, you call yourself a futurist. I think he thinks that everyone on his side, your side, are futurists. And I suspect that that's actually kind of true as a correlate, but it's a very contingent correlate. I feel we humanities people should be claiming that mantle of futurism.
Robin: But it follows more from having systems in the sense that with a system, you can just track the ways the system is getting better, at least from the internal systems evaluations point of view.
Agnes: I think that yes, from the internal systems evaluation point of view, but you might think you're very likely to get stuck using a system that doesn't work and create epicycles like the geocentric system was a system and they could keep modifying and improving the system. And so like, you know, Kuhn's whole idea was that scientists are, in some sense, get stuck in systems and then we eventually we just need to wipe the slate clean and kind of start over. I mean, not completely.
Robin: Sure, but humanists get stuck in things too.
Agnes: Right, right, absolutely. But I think we're doing a good job fighting about this now.
Robin: We're looking for correlates here. So if we just find features that are in common on both sides, that's not useful as a correlate.
Agnes: But I guess what I'm saying, I'm not sure that the point about systems predicts the point about futurism. Because yes, you can make progress in a system, and you can also get stuck in a system. I agree you can get stuck in the humanist too. Right.
Robin: But the system lets you measure if you have progress.
Agnes: Yeah, we did the system.
Robin: Right. So think of this as a system of geographic places. Once you can measure which place everything is, you can ask, is our set of places getting bigger? And then if it's getting bigger, you can say, hey, we've got progress here. We're expanding into more places. Of course, you could have had a system that showed you that you were reducing your set of places. So progress isn't implied by having a system, but the ability to show that you have progress is applied. So when you don't even have a system, it's just hard to see if you have progress or not, to measure it. So at least that's the correlate.
Agnes: It seems to me that Snow's conception of progress is actually very specific. It has to do with the industrial revolution and poor people having more food. That's kind of what he means by progress. that the condition of forest people is raised by technological progress. And really it's technology there, not science. The clear problem solver. So that's part of why I was tracking the problem solving thing. And so I wonder whether the sort of contemporary version of this, where things have changed a little bit since, what did you say, 1950? 59. 59, OK. Is that the humanists are egalitarians.

And they view egalitarianism as their big ideal that we're trying to achieve and move towards. And they're not willing to give up the banner of progress anymore to the science people. They're like, no, we care about values and progress and making the world better. And we're going to do that by making it more equal. And that also allows them to say, we actually care about the poor people because we want to make everything equal and we want to kill all the billionaires and make everyone equal. Or, you know, that's caricature. But the point is, I'm interested in this question of how the two feel, how the two sides maneuver for being the side of progress and what

Robin: I feel that's the... I think we economists sit in the middle of this. So I think many on the humanist side are happy to maybe give the physicists their physics or even cosmology and say, okay, you guys know more about physics and the universe.

Agnes: Yeah.

Robin: As long as they can hold on to the social part and say, but we're in charge of, are people happy and do they have meaningful lives and things like that. and then they're in charge of whether we really have progress because they're in charge of the important things. But then economists and other social scientists have tried to colonize that intermediary territory with STEM and we say well we have economic welfare and economic growth measures and even inequality measures and we say well hey you humanists good news inequality is down as well as growth being up you guys should be really happy and then they're not so happy that like we're the one saying it that we're in charge where we've declared ourselves in charge because we made up a system by which we say you can directly address these questions, and they feel like, well, you must be missing something. We're in charge of the stuff you're missing, and maybe your measures of inequality or growth are going up, but you shouldn't be so sure that I capture all the important things, because we're in charge of all the things you guys aren't properly measuring in your systems.

Agnes: Right. And so one of the things I guess that Snow brings up that seems relevant here is the individual condition versus the social condition. And I guess in Snow's time, 1959. He's thinking of the humanist, he's really thinking of poets somehow, first and foremost, as concerned with the individual, the tragedy of the individual life. I'm actually not sure what he's talking about. He's like, it's well known that the individual condition of each of us is tragic. I would have said there's a possibility for tragedy in your life, not like everyone's life is tragic, but that somehow considered as a social, happiness considered as a social phenomenon, the happiness of the group somehow, that's maybe not tragic because it can improve. But I think you're right that something that has happened since 1959 is that actually a lot of humanists want to talk about groups of people. They want to talk about systems and unjust systems and systems of power. I mean, I suspect this was somewhat true even back then, but whatever, maybe the people he talked to were all poets.

Robin: They want to talk about systems, but not using systems of thought.

Agnes: I think they might want to use systems like Foucault. People who study Foucault, that's a system. And they learn that system and they learn his language and his

terminology. And they only want to talk to other people who also talk in that language. And that is a kind of system. So they do have systems. It's just, I mean, they don't tend to use numbers. But I'm sure you'll find some that throw some numbers in there.
Robin: OK. Economics has become much more influential over the last half century in this time, especially in policy and in social science. And it's in part because it claims to have systems that address these key issues and has been accepted more as an authority in those key issues, as substantially influential in politics and government and elsewhere. And I think that bothers many people who would rather some other system were used instead because the economic system is giving answers they don't like, recommendations they don't like, and they're not so sure they should believe us.
Agnes: OK, so let's go to why they don't like. I mean, I don't think it's only like, well, there's somebody else, and they're not us, and we want to be in charge. So I just got an email today from somebody who was telling me giving me a theory of something. And part of it was like, it was like humans are inherently cooperative, but we're not being as cooperative as we could be. And there were some examples of why. And markets were given as an example of human non-cooperation. That was weird to me because it seemed to me that markets are an example of cooperation. or a way of cooperating. Among a group of people that are really at each other's throats, you can't have economic exchanges. But I think still, people in the humanities, they don't like markets. They don't like competition, even though competition is a form of cooperation, I think, to also- Or acknowledge inequality. Right. Well, I mean, you just told me that inequality is going down, so I thought I could stop worrying about that. But OK.
Robin: That's the thing they don't like about capitalism, though, is acknowledged inequality, like accepting inequality of various parties.
Agnes: Right. Okay. So they don't like, yes. And so one of the questions would be, are these features, not liking markets, not liking competition, not liking inequality, are they somehow in some important or deep way tied to the humanistic side of that divide? Or is that just an accretion or something that's incidental?
Robin: Let's go to these correlates I was suggesting, but you hadn't weighed in on whether you agreed with them or not. When people use these systems, they use more numbers, they use more conscious calculations, more sort of emotional neutrality, and just do the calculation attitude. And on the other side, they do more emotions, more intuitions, more aesthetics, more inspirational speeches, more sort of value laden stances and appeals. That's, I think, part of the correlation between the STEM side and the other side. The STEM side is trying to act objective with respect to the idea, I'm just using the system in the way anybody, if they used it, would get to the same answer. And doing it in a way that maybe they could show you exactly how they did it, so you could do it exactly how they had done it, and you could therefore all agree with them. And the other side is not trying to do that. They're trying to give a rich, full presentation that engages your emotions, that draws at your intuitions, that makes you aesthetically appreciate it in ways you can't fully comprehend or consciously analyze,

and draws on your affiliations with them and associates and your deep attachments in order to pull you and persuade you of stances and conclusions. That's what that style's sort of rhetorical techniques are more like. That's a quite distinctive rhetorical style. And that somewhat predicts, I think, these things you're noticing here.

Agnes: So, right, so I would say that, you know, there's a reason that you would expect that problem solvers would behave in just the ways that you said, namely, if we're trying to get around this mountain, we might chart a path that anyone could take around the mountain. And it wouldn't matter why you were on it to get, it wouldn't matter why you need the problem solved, right? And we can all solve it in the same way. And we can limit, we can clearly define and limit the scope of the problem to getting around this mountain. Like once you did that, you're on your own. We're not gonna tell you what to do with your life. Whereas if there's a question, and you're hunting for the answer to the question, and what you want fundamentally is the answer. And there isn't some other reason why you want it. That's it. When you have it, then you'll have the thing you wanted. But you're not even sure. You can't be sure what it is that you want. Because if you're sure what it is that you want, you basically have it.

Robin: And so what you're- Well, that's not obvious to me at all.

Agnes: Well, so I think that- I think that- If I want to know what the largest prime is,

Robin: I don't have to know why I want that, but knowing the question doesn't tell me the answer.

Agnes: I agree that in that case it doesn't, but that's why I gave the analysis of that as a problem hiding in question clothing.

Robin: Well, what's a good example of a question that isn't hiding in problem clothing?

Agnes: How do you live a good life?

Robin: Something more specific than that. I mean, that's sort of the generic answer to the question of everything.

Agnes: Well, they tend not to be very specific. Like, what is consciousness or something like that? What is the difference between a mental process that is conscious and one that isn't conscious? What is the difference that consciousness makes? Something like that. I take that to be a question. or even just what is thinking, where when someone like Turing comes along and says, look, if you can pass this test, you count as thinking, that's taking a question, turning it into a problem. And my thought is that when what you have is a question, like you were just being frustrated. You were like, give me something specific. Tell me what you mean, right? And I'm like, look, I'm going to have to do some aesthetics. I'm going to have to play on your emotions. I'm going to just use everything I've got to try to key you into the thing I want so that you kind of want it too. So that we both want this thing. Neither of us can say what it is that we want. I don't think we're really going to really fully know what we want until we have that thing. We could search for it together, but we're probably going to have to be on the same page in order to search for it together. And so it does make sense that you're

going to get this whole rich repertoire. You're going to bring everything to bear, the entire kitchen table to bear, on this search. It's not going to be restricted or limited.
Robin: Let's say you ask, what is thinking? And then I try to reframe that question in more concrete terms. Is every reframing going to be called a problem? Or is it the only way to maintain it as a question is to keep it at this vague level, which we almost know nothing about?
Agnes: So if you want to ask, do we ever make progress on questions? I think the answer is yes.
Robin: But without turning them into problems.
Agnes: I think so, yes. But if you want to, I think if what you want to know is, is there any way to make the question what is thinking more concrete without using aesthetics and emotions and throwing the whole kitchen table at it? I think there the answer might be no. And it may be that one way of making it concrete in one interaction is going to be different from how to make it concrete in another interaction.
Robin: Well, so for example, I have been an AI researcher for many years and an economist, and I have continually faced the question of how to reframe that question into a more useful question. And then my usual framing is, let's talk about what it would take for machines to be able to take most human jobs.
Agnes: Right.
Robin: That is, if they could do that, they would be thinking in a very important sense.
Agnes: Yeah.
Robin: Now, is that turning it into a problem?
Agnes: I think so, yeah.
Robin: It seems to me like I've just embedded it in a framing of a system, but I haven't changed it other than that. So it seems to me that what you mean by problems are questions embedded in systems.
Agnes: So I think that in order to make a question more concrete, What you have to do is somehow channel the spirit of the person asking it. You can't, because they don't know exactly what they want in asking the question. And so if you just stick your interest on it and you don't really hear, like what is the, like the person who's asking what is thinking, what is their concern? Can you hear the concern?
Robin: Can you say, okay- For many people, they really have the concern that they might take their job. That's not a typical concern.
Agnes: I think that's right. And so it may be that, maybe the right thing to say is like, it depends who's asking the question.
Robin: So for many people, it would still be a question.
Agnes: I think that that might be right. So I think that, I think that there's definitely people for whom it wouldn't.
Robin: So I'm going to treat it as if it were a problem in the sense I have a whole bunch of tools in economics by which I could make progress on that question using all those tools without knowing much about why you asked the question. Once you're

willing to reframe the question that way, embedded in the system, then I can ignore all the reasons you have for the question and just use the system to answer the question.
Agnes: So I think that when you ask a question, you kind of have to keep track the whole time of why you asked it. Because it could be that at a certain point, the system is like getting its teeth into it in a way that's losing track of your original reason for wanting to know the answer. And then you're not answering the question anymore. You're solving a problem, but you've lost hold of the question. And I think that this is what people in the humanities are really concerned with. They're concerned with the danger of losing hold of the question. they're willing to sacrifice the system.
Robin: Okay, but how do the rest of us know that humanity's people don't lose track of questions just as often as everybody else?
Agnes: We do. I just said we're concerned with it. I didn't say we're successful at it.
Robin: Okay, well then if you're saying, hey, don't do that STEM thing because you might lose track of the question, and we say you lose track of the questions just as often doing your other thing,
Agnes: I didn't say don't do it. And I don't know how often we lose hold of it. Because I think asking that sort of question is already putting a stem framing on it. This would be a very hard thing to say. I'm counting.
Robin: I'm using numbers. Horrors.
Agnes: Yeah, there you go.
Robin: You might lose the question if I asked how often you succeeded at your goal.
Agnes: Yeah, I think that's right. You might. So I think not all evaluative frameworks are sometimes useful in keeping track of questions, but often they're not. Suppose I'm writing a paper on King Lear or something, right? And I'm asking myself the question, was Cordelia's demand that she be valued for telling the truth legitimate or not? If I spent too much time while writing the paper evaluating how I'm doing, am I succeeding at this? Let me use some metrics or whatever. I would become detached from the project of caring about, is Cordelia making a legitimate demand? And that's something I could want to know the answer to. I could want to know that. And a humanistic approach to that question would be driven by wanting to know the answer. And you'd be reading the play with a view to learning the answer, and you'd be writing the play.
Robin: OK, so I'm hearing you say, Humanities people have a set of questions they want to address, so do STEM people have questions they want to address. STEM people eagerly convert questions into problems in the sense that they embed the questions in their frameworks and work on them that way. Humanities people are worried that by doing so you might lose track of the question. But humanities people have no known reason to believe that, in fact, the STEM approach does lose track of questions. They just have this vague abstract possible fear that it might happen that way. And therefore, they do what? On the basis of their fear, how do they act differently?
Agnes: I don't, I'm not sure that STEM people do have questions. So maybe sometimes some of them do, but I think a lot of the time they're just, they look around and they

see what people are doing and they're like, how can we do that faster? I just don't think that's at all fair.
Robin: I think STEM people have things they care about just as much as humanities people do.
Agnes: I would say from talking to you, if I just made an inference just from talking to you, I'm often in a situation where I'm like, oh, I have this problem and this problem. And you're like, I have a system for that. You love having systems for things, for what you're doing.
Robin: But do we have any reason to think that goes wrong? On average?
Agnes: I'm not saying it goes wrong. In fact, I think it goes right. That is, you have a kind of faith in the world where it's like, let's take the criminal justice system or something, right? And you're like, are we really doing that as well as possible? Are we convicting as many guilty people? Are we acquitting as many innocent people? Couldn't we throw some epistemic machinery into here to make this work best? Maybe we need to pay lawyers by how many? And the thought here is, Look, I'm not sure why we have a criminal justice system or why we want to be doing this, but I can see ways to do it better. That's, I think, fundamentally the tech approach.
Robin: But you're saying that person doesn't actually care about anything, which just seems to be standard.
Agnes: No, I'm not saying they don't care. Of course they don't care. I'm not saying they don't care.
Robin: Well, then what are you saying about them exactly?
Agnes: I'm saying that they're happy to take on the care, you, particularly. but also about your club, you're sort of happy to take on the cares, almost like benefit of the doubt, take on the cares of the world that you're a part of. And you're like, look, one of the things that we're doing is building faster processors or whatever. And I'm going to do that. I'm going to make them even faster. And so there's a kind of farming out of the project of figuring out, wait, what are we supposed to care about? And I don't think tech people ask themselves that question.
Robin: What would a humanities person do instead? So say you're faced with a race car and something's broken. A tech person might say, gee, this person needs to fix this race car to win the race. Let me go help them fix the car. And what would the humanities person do instead in this situation? Explain, just describe the scenario. What are they going to stand there and do?
Agnes: They probably would not. If you were the race car driver, you'd want the tech person there and not the humanist. Although, perhaps the humanist will while away the time with you in an interesting way.
Robin: Show me another situation where the humanist will be of use by doing this other thing they will do so we can see the difference. Here it is, the tech person trying to help in whatever way the person might want to be helped, and the humanities person's going to do what instead?

Agnes: One example is what I'm doing right now. Which is? I'm a humanities person. I am trying to say, First, if you want to look at these two cultures and you want to understand the fundamental difference behind them, it's not enough to be like, I see some more systems over here than I see over here. You have to ask yourself, what do they care about? You mentioned crime.
Robin: Tech people might say, gee, crime rates are high. How could we lower them? The humanity person would instead say, what? We want high crime, let's not lower the crime rate, or what does crime really mean anyway? I don't know.
Agnes: Yeah, I think they might say that. I think they might say, what does crime mean? I mean, the way you just put it was dismissing that as a question that is not permitted.
Robin: I happily engage what is crime anyway. I teach law and economics quite regularly, and that's certainly one of the topics we will discuss. So it's not that I don't ever engage it, but there would be context where I wouldn't engage that question because I was focused on a different one.
Agnes: Right. And look, I mean, I feel like you're the it's not the case that So first of all, it's just not going to be the case that the humanist has anything to say to many of the situations in which the tech person will find themselves. It's not like they have the humanist approach to that situation. To some degree, these two cultures exist because we find ourselves in different situations. And maybe I want to remark, because we have less than 10 minutes left, that I do want to talk about this question, because we've been doing what happens in this piece, which is like the two cultures fighting to say, I mean, we're fighting over our different definitions of them, but still we're at a meta level reenacting this battle. And Snow feels very sure that we should just have one culture. And that it's just a disgrace that the scientists don't read Dickens, that they even view Dickens as really difficult literature. And it's just a disgrace that the literary people can't name the second law of thermodynamics. And that just the world would be much better if the literary people studied the laws of thermodynamics and the science people read Dickens. And is that true?
Robin: It seemed like we were getting close to this in our other discussion that is for many of the divisions we have male, female, young, old, you know, smart, dumb, all sorts of things, north, south, etc. One of the ways we try to talk about a world where both of them and coexist would be to try to imagine them having somewhat different roles. That is, we could share a world together, and then they could each do somewhat different things. And then if we could each recognize the value of the things the other side does, then we could see why it'd be helpful to share a world with them. So that's what we were getting to a moment ago, perhaps, in thinking about the example of the race car or crime. we might be able to say, OK, for which kind of situations would each of them be more useful or in what way? And if we can lay out a number of examples that may be generalized from that, then we could make it clear to people what the value is. Now, I guess you might say, well, the humanities people will definitely agree that the technical people have a value in certain limited technical

areas. If you've got the race car, you want it fixed. You want GDP statistics, somebody needs to collect it. And then maybe the harder question is for the humanities people to convince the STEM people, what are they doing exactly that the other side should value? What's the situations or the questions where which their approach is especially useful, valuable, at least as a percentage of the mix so that you could get the other side to appreciate why you want to have them around.

Agnes: Yeah, maybe that's a deep asymmetry, is that it's actually easier because the tech people are in some sense fundamentally servile, that is, they're like tools. It's going to actually be easy for them to make the case for themselves. I can be useful to you. And it's harder for the humanists to make the case for themselves to detect people. I mean, you know, I was just remembering, you're like, I teach law and economics, and we've actually had this conversation about crime, where, so like a humanist might ask, what is the point of punishment? I've asked this question. And I remember having a discussion with you about this, where you're like, look, in law and economics, we just take for granted that, like, say it's gonna be deterrence or something like that. And for me, it's like, well, I don't take that for granted. That's not obvious to me. It's not even obvious that that's a legitimate purpose of punishment.

Robin: We do question it. We do discuss it a lot.

Agnes: The obvious answer would be education. That would be teaching people that what they did was wrong. It just doesn't work.

Robin: It doesn't happen.

Agnes: Right. So then we're not doing very well punishment wise. But I guess that would be like the thought would be that there's a framework and the framework is predicated on the thought that the point of criminal justice is deterrence. And then how do you get the person who is stuck inside that framework, like you, to think that there's anything useful at all in the person who's saying, I want to make the case for the claim that the goal of punishment is education?

Robin: So in C.P. Snow's article, his first example of an inexcusable ignorance on the side of the humanities is, what's the second law of thermodynamics?

Agnes: Correct.

Robin: OK. Now, if you applied that and you said, hey, you guys using thermodynamics, you're not enough questioning your system of thermodynamics. We're useful over here because we can help you question it. And then the people will say, but if you don't even know the very basics of the system, what makes you think that you're going to be good at questioning it? We have a lot of people over here who question it all the time. I can show you vast literatures of people having all sorts of different ways to question this. in specifics, and I can do that for crime or decision theory or everything. On the STEM side, we have large literatures of people questioning lots and lots of different aspects of our systems, but there are people who understand the systems in quite some detail. So the hard sell is to point at people who hardly have the foggiest idea how these systems work, and then to say their value is they're questioning these systems.

Agnes: Right.
Robin: may be showing you how you could do without the systems, maybe they're just exploring ways you could reason and decide and live ignoring the systems because that seems to be what they largely do, but to say that they are helping you restructure the systems or re-evaluate the systems at their foundation would suggest they have to know a fair bit about them and actually
Agnes: There I guess I just think it matters which of the systems we're talking about. So the thing you're saying is not going to work that well for thermodynamics. It might work OK for the criminal justice system or decision theory, because the people that are calling those things into question actually do tend to know. Bayesianism or something. The people I know who are calling into question some fundamental principles of Bayesianism are very familiar with Bayesianism. They understand it.
Robin: Those to me count more as STEM people. The people you know who are questioning Bayesianism as philosophers, they do the STEM-dependent technology stuff.
Agnes: They're philosophers.
Robin: Yes, but they are the STEM-type philosophers.
Agnes: Look, I do get that STEM people aren't going to respect you unless you learn some of their complicated stuff. That's part of the price of admission. Fine. Let's allow that. But I guess I think that there's something quite difficult here at the meta level where I'm not sure that the humanist can sell themselves to the tech person in the language of tech, whereas the tech person can do the other way. It's just asymmetrical. And so I think if we wanted the human... For the humanist to, in some sense, respect the tech person is not that hard. They're not gonna give as much respect as tech person wants, but give them some respect. The humanists are never gonna think of the tech people, they're totally bullshitting. Whereas the tech people are actually liable to think of the humanist. It's just nothing. They're bullshitting, total bullshitting. And I think that's because if you were to ask, what would it take for the tech person to respect the humanist? I think they would have to be a little bit of a humanist. That's how they're going to appreciate it. And I don't know that there is any other way. Whereas the humanist doesn't need to be a little bit of a tech person in order to appreciate the tech person.
Robin: So for example, there have been a number of cases in the last century where physicists left physics and went to other fields, say evolutionary biology or chemistry, and helped reform the foundations of those fields. somewhat as outsiders or say economists went into law to do law and economics, and so we have had these cases where fields have sort of somewhat earned the respect of other fields because they went in and help them restructure their foundations and then those people, except Those foundations as new good foundations and they can point to the people who helped and say, well, they came from there and so that must be a place we have should have some value for because those people at some points are able to come here and help so if humanities people could be sometimes the people who in fact. helped STEM people

reorganize and reconsider their foundations. We had a history of being able to name and point to those people, then that would be pretty solid evidence from the STEM point of view.

Agnes: So here's a little bit of a thought along those lines. Maybe we'll have to end on this, or you can respond, obviously. I have, over the past few weeks, immersed myself in a literature on the explore-exploit trade-off that is spans a huge area of biology, ecology, information science, social science. And there are a lot of systems involved. There are a lot of complicated systems at play in these papers. And I've read dozens of papers and a book or two. And it's way more territory than I could have covered at any previous time in history, given my very limited ability and knowledge of systems, were it not for my like special secret helper, ChatGPT, who I'll read through a paper, I'll get to a tricky part, I'll upload that page or the article, and I'll be like, can you summarize? I can't really follow the math in this part. Can you summarize this part? Can you explain? Can you give me a? And it has allowed me to, I'm sure not at the level of the people who work in any of these fields, but to kind of take in a big technical literature in a limited way. And I would not have devoted several years of my life to this, but I was willing to devote two weeks to it. And so I'm sort of hopeful. There's an interesting question about chat GPT, which culture does it belong to? And I think it really squarely belongs to both cultures. It is very verbally sophisticated. It's very good at style, at understanding different styles, understanding the quotation marks, et cetera. But it's also good at math. It makes mistakes, but still, it's good. And so something I wonder is about if we did think it was good for there to be more crossing of the borderline, it occurs to me that Chad Chibiti is actually kind of a tool for that.

Robin: So there's this old phrase, the god of the gaps. It's a phrase in the literature discussion about creationism. There's this idea that evolutionary or biology has worked to try to understand lots of data in biology, but then there are often things it doesn't quite understand. And then creationists have been characterized, perhaps unfairly, as jumping in at those points and saying, aha, see this thing, you don't understand that's where God is. God is behind the gap that you're seeing there. And then of course, as they close the gaps, the gaps move and then creationists move and they point to a new set of gaps and they say, well, the reason you need to invoke God is because these things you don't understand, that's where God is.

Agnes: Seems like the creationists is good for the progress of science then.

Robin: It's not clear that they were motivated by the creationist claims to focus on those gaps. It could have just happened for other reasons. But I think for many on the STEM side, that's a fear about the supposedly helpful humanities people working on the gaps. Whatever it is you guys don't quite understand and whatever holes there might be in your frameworks, that's what we're useful for. then it might be true that they're useful for that, but we might want some further evidence that they are in fact being useful there. If you're asking for evidence, that's just too STEM-like. You have to intuit it and feel it over here.

Agnes: Okay, but a minute ago, you were like, it'd be nice if the humanities people came in here and helped us with our problems. I'm like, hey, let me give you an example of how I did that. You're like, well, it's probably just the gaps.
Robin: In the last two weeks, it's the kind of thing you might help with them,
Agnes: Right. I agree. The proof is in the pudding. I was like, is the theory that I have come up with about exploratory exploit, which I don't think is just filling in a gap. I think it really is. There's a fundamental conceptual issue. Is this actually going to be useful to people? And I'm not going to know that until I actually present it to people and they tell me whether it's useful to them. So I agree. It may or may not be useful.
Robin: But it seems to me there's a better answer here. If you just want to say something like, if you want to read a novel and feel like you understand it better, that's what literature professors are for. You don't have literature professors over there in STEM. Maybe literature professors don't have as good of or mathematical elaborated systems, but they have whatever systems they have. And if you want to go understand a novel, these are the people you should read and listen to. And that would be more the rationale, is to say, I would think the non-STEM people are just in areas where systems are less powerful and less useful. They do what they can there. And if you want to learn the stuff that it's in their area, those are the people to listen to. And that's the reason why they're valuable. That seems much more straightforward justification to say, just to name the things they study could be art, it could be literature, it could be whatever it is, or public writing and say, look, we are the people who are good at this. If you want to understand this, you got to come to us. Why don't you use systems much? Because we've tried and turns out they're not so useful here yet. And that's the reason why those people are useful because they figured out the best way to do the things they do is less using systems.
Agnes: I mean, that's going to be true. I agree that that's true. The question is, is that the most informative thing you could say?
Robin: You say if you're just trying to make sure the STEM people respect them somewhat, just as the STEM people are only respected somewhat by the other side, that at least raises the bar up to, you know, they have a role, just like the tech people, fine, they could fix your car if it's broken.
Agnes: The presupposition here. was that the tech people are people who are like, I don't understand why anyone would ever read Dickens. And so if you're like, well, suppose you're interested in reading Dickens, you've already. So what I was trying to do was speak to those people. and say, why might someone be interested in reading a novel? Now, I think I have things to say to answer to that question, why might someone be interested in reading a novel? And so I'm not willing to, I mean, yes, if people happen to be interested in reading Descartes, then they already have a reason to take my class in which we read Descartes. But I think that that is one of the things that characterizes the humanities, is that we see it as part of our burden, not just to address the people who already happen to be super into Emile Zola, love to talk to

those people, but also I'm going to tell you why you should be super into Emile Zola, even if you don't even like novels. That's part of my job. And that may not be the job of somebody, of someone on the other side may feel very comfortable being like, look, I'm going to teach you this fancy thing if you happen to want to learn it. If you don't happen to want to learn it, that's fine with me.
Robin: But I do think STEM people do typically try to take on the task of convincing you why their stuff matters and why it's interesting.
Agnes: There's a question of how much of that task they have to take on. We have to stop because we're over time. All right.
Robin: Nice talking.

Robin Hanson & Agnes Callard
Minds Almost Meeting: The Two Cultures
Season 8, Episode 11.
May 2, 2024

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<mindsalmostmeeting.com/episodes/the-two-cultures>