

Demetri Kofinas: 00:00:00 Today's episode of Hidden Forces is made possible by listeners like you. For more information about this week's episode, or for easy access to related programming, visit our website at hiddenforces.io and subscribe to our free email list. If you want access to overtime segments, episode transcripts, and show rundowns full of links and detailed information related to each and every episode, check out our premium subscription available through the Hidden Forces website or through our Patreon page. And remember, if you're listening to the show on your apple podcast app, you can give us a review. Each review helps more people find the show and join our amazing community. And with that, please enjoy this week's episode.

Demetri Kofinas: 00:00:50 What's up everybody? I'm Demetri Kofinas and you're listening to Hidden Forces where each week I speak with experts in the fields of technology, science, finance, and culture to help you gain the tools to better navigate an increasingly complex world so that you're less surprised by tomorrow and better able to predict what happens next. My guest this week is Dr. Nicholas Christakis. A renowned sociologist and physician named to Time Magazine's list of the 100 most influential people in the world. He is known for his research on social networks and on the socioeconomic, biosocial, and evolutionary determinants of behavior, health and longevity. He directs the human nature lab and is the co-director of the Yale Institute for network science as well as the Sterling professor of social and natural science at Yale University. Our conversation today focuses on the professor's book, which is as its title suggests an exploration into the evolutionary origins of a good society. It explores the biological foundation of culture making and the features that define the social landscape that we have evolved to create by focusing on the profound similarities that can be seen, not just cross culturally, but across time and space from some of the earliest groups of hunter gatherers to impromptu societies formed by the survivors of shipwrecks or more deliberately constructed communes like those of the 19th century transcendentalists. We also discuss the biological origins of romantic love, examine polyamorous cultures like those of the Na people of the Himalayas, and compare human societies with those of elephants and whales. This conversation is full of fascinating anecdotes, stories, statistics and scientific research that weave together insights from the fields of evolutionary psychology, moral philosophy and genetics, cutting right to the heart of society's resurgent interest in human origins, social norms and moral values. And with that, let's get right in to this week's episode.

Demetri Kofinas: 00:03:06 Professor Nicholas Christakis, welcome to Hidden Forces.

Nicholas Christakis: 00:03:10 Thank you so much for having me Demetri.

Demetri Kofinas: 00:03:11 You're our first Greek guest, you know that?

Nicholas Christakis: 00:03:13 Is that right? After how many guests?

Demetri Kofinas: 00:03:15 Can you believe that? I mean after many. Close to a hundred. Maybe a hundred?

Nicholas Christakis: 00:03:17 Well, I mean they're a 10 million Greeks in Greece and 10 million in diaspora, that's 20 million Greeks and you actually, we have an outsize impact, I think-

Demetri Kofinas: 00:03:26 I think so too. Yeah.

Nicholas Christakis: 00:03:27 We agree on that?

Demetri Kofinas: 00:03:27 Yeah, exactly. Most certainly, of course. So, I was just telling you how much I enjoyed your book. Speaking of Greece, your book and you actually said that you would give us a great story in the overtime about your experience meeting the Greek president and prime minister, which I'm excited to share with our audience, but you bring Greece up in the book. Both I think in the intro and the first chapter. In two separate chapters.

Nicholas Christakis: 00:03:52 Stories from my childhood, yeah.

Demetri Kofinas: 00:03:54 Yeah. And I'd like to ask you about some of those, but before I do, in the beginning of the book, you write before any of the chapters, you write, the world is better the closer you are to Erika, I assume that refers to your wife Erika?

Nicholas Christakis: 00:04:05 Yes.

Demetri Kofinas: 00:04:06 I wanted to ask you about her because you write a lot about play in the book and this again intersects with the point about Greece. You mentioned this really beautiful story about being on an island off the coast of Turkey where you vacationed as child with your mother and your brother the Demetri and playing with some Turkish children. How much did Erika's work with shoulder and impact this book?

Nicholas Christakis: 00:04:27 Oh my God, I'm going to have, I mean a lot, you know, Erika has been thinking deeply about play and about the role of play for children, which is the principle means by which children learn

about the world. And in the book, I do talk about some classic ways or some classic arguments about how much of children's play is social in nature. They are kind of aping adult society. They are creating little miniature societies among themselves full of cooperation and competition and friendships and animosities and all kinds of complicated social experiences children play with and learn as a result, how to participate in society and how to make societies. They do this innately and so there's a sense in which play is not only the way we learn about the world, but play is a way in which we practice making societies. And I was very much influenced by my wife's thinking in these regards.

Demetri Kofinas: 00:05:19 You know, another thing we share in common besides being Greek, is that our parents have the same names. My mom's name is Eleni and my dad's name is Alexandros and I was telling you before you came in we both had socialist grandfathers who tried to convert us to PASOK.

Nicholas Christakis: 00:05:32 Yes. Also, true.

Demetri Kofinas: 00:05:35 That's interesting. And I think also I'll continue on this point about Greece because you share another great story about being in Plateia Syntagmatos (Constitution Square) in Athens in 1974 during the fall of the junta. And I think that's interesting in the context of what you wrote in your book, but I also want to preface everything by making a larger observation about where this book falls. I think, and I want to ask you about this, there seems to be a resurgence of interest in the public domain around questions of ethics and moral philosophy and evolutionary psychology, evolutionary biology, things like this. Do you think this is just a cyclical thing? I mean this is obviously we've seen movements in the past where society's up and norms and change values and there seems to be something similar happening today. What do you think that's about? You've obviously also, for some context, you were famously in an incident that we talked about with Jonathan Haidt and your wife as well at Yale in 2015 I think. So, this is sort of the context of a larger conversation that's been brewing. Many people have been discussing these things like people like Sam Harris for example, or Jonathan Haidt. What do you think is causing this in the culture?

Nicholas Christakis: 00:06:48 Well, you asked many interconnected questions here. One question had to do with sort of to what extent are their intellectual or popular fads regarding the origins of morality. For example, periodically people get interested in, are we hardwired to be moral? To what extent ... there was a whole

interest in the way ant societies were models for human societies and in the sixties and seventies, sociobiology and so forth. So yes, those common go. You also though alluded to what I would regard to be a much longer standing debate, going back to ancient philosophers about the origin of morals, right? So, it's a question of moral philosophy, where do morals come from? Where do our moral principles come from? And one very conventional explanation that humans had been giving since time in memorial is that they come from God, right? I mean that's the classic easiest explanation.

Nicholas Christakis: 00:07:36

These moral principles, God made them up like literally they were on the 10 commandments for example, or they originate outside of ourselves. Another classic explanation is that they are the majority. They are just a product of voting. So, what's deemed to be moral is people get together and they vote on stuff or they express a popular will. Another kind of explanation is that they're fads. They're merely arbitrary. Yet we know that's not the case because we look around the world at moral principles, even in small scale societies, even using historical information with relatively little contact with the kind of modernized systems we find again and again very fundamental principles about not murdering, not stealing, not lying. These moral principles are kind of, observed in many locations. Another account which lies in this book, although the book is not, my book is not about the origins of morality, although it talks about the origins of a good society is that these principles come from within us and are biologically guided. That is to say they are shaped by natural selection.

Nicholas Christakis: 00:08:42

So that is to say, in order for us to live together, in order for us even to be a social species, we had to come to express a certain set of behaviors and phenotypes. We had to be loving and friendly and cooperative and be interested in teaching and learning from each other. All of these are traits that we naturally manifest. They had been shaped by natural selection. They make it possible for us to live together. If we didn't have these traits, if you were always violent towards me or lied to me or rip me off, I wouldn't spend any time with you. Society would disintegrate.

Nicholas Christakis: 00:09:17

So natural selection has played a role in shaping our social behaviors in ways that to most viewers, to most observers strike them as manifestly good. And in fact, if you think about what things that we consider virtues, they're social in nature. So, we don't care whether you love yourself or are kind to yourself or just to yourself. We care whether you love others or kind to

others or just to others. So, virtue is about how we treat each other and that lies of course at the core of the book.

- Demetri Kofinas:** 00:09:53 You touch a little bit on the is-ought problem in the book. And that's sort of another way of discussing what you're talking about now, right? Which is where did these ideas of...we know how we come to a view of what the world is, we come to it through our sensory perception, but how do we arrive at a notion of how we think the world ought to be? And that discrepancy between how the world is and how it ought to be is the source also of a lot of these conflicts that we're seeing in society today, right?
- Nicholas Christakis:** 00:10:19 Okay. So again, another and I'm not a moral philosopher, but yes. So, I've been thinking a little bit about topics that are relevant to moral philosophy. The is-ought dilemma or dichotomy is another classic conundrum or problem in moral philosophy. And so, the question is where do our prescriptive ideas come from? How can we say that we ought to do something or that one state of a world is better than another? And the solution that one branch of more philosophy has come up with that I endorse is that the ought statements have to do with the constraints that the natural world imposes. So, if we say, what does it mean to be a more perfect human. To live socially in a more perfect way? There are ways in which we ought to do that, that are guided by our evolution.
- Nicholas Christakis:** 00:11:10 So you, for example, you can speak of a good tree. A good tree is a tree with healthy roots that has leaves that can do photosynthesis. That's what it means to be a tree. So, if we want to say, what does it mean to be a society, this is what it means to be a society. Therefore, if that's what it means to be a society, this is what a good society is.
- Demetri Kofinas:** 00:11:31 A good society is what a society is meant to be.
- Nicholas Christakis:** 00:11:34 A good society-
- Demetri Kofinas:** 00:11:34 By its biological nature. That sort of the idea of your point.
- Nicholas Christakis:** 00:11:37 Yes for instance. That's right. I may use the tree example, but that's right. That's right.
- Demetri Kofinas:** 00:11:41 A good hunting dog is a dog that hunts well.
- Nicholas Christakis:** 00:11:43 Yes, yes. It is able to satisfy the constraint of being a good hunting dog. So, the famous moral philosopher, Philippa Foot

used a famous example of a clock, she goes, what does it mean to be a good clock? Well, it's a clock that tells time correctly, right. That's what it means to be a clock, is the capacity to tell time correctly. Therefore, we can speak of good and bad clocks, clocks that are better able to realize what it is that they're supposed to be. And so, I think we can use that set of ideas or that approach on moral philosophy to make a judgment about what it means to be a good society. And like I said, a society would be hard to imagine being a society if we just started killing each other. Nobody will be left. It wouldn't be a society.

- Demetri Kofinas:** 00:12:25 It's an interesting metaphor because of course Einstein taught us that time is relative and that therefore no clock can exist in and of itself telling the right time, right. So, it's-
- Nicholas Christakis:** 00:12:35 The frame of reference would be-
- Demetri Kofinas:** 00:12:39 Exactly. So, it's important to how you tell time relative to the other clocks. So, it's an interesting thing to sort of weave into there. So, what is your argument in the book, if you could present it or enunciate it here, what is the overall argument you're trying to make?
- Nicholas Christakis:** 00:12:52 Well, I would say that it aspires to be a big book. There's lots in it. There are lots of vivid examples about everything from shipwrecks.
- Demetri Kofinas:** 00:12:59 The best chapter.
- Nicholas Christakis:** 00:13:00 Oh, you like the shipwreck chapter?
- Demetri Kofinas:** 00:13:01 That chapter and the chapter on love are my two favorites. And so, we're going to go through those details because I love those stories.
- Nicholas Christakis:** 00:13:08 All right. So, there are lots of stories. There are stories about crazy animals, about elephant friendships, about the Zombie ants. I mean there are lots and lots of stories and there are a number of overarching points. I guess the first overarching point that I would say is that it's a book that tries to push back against a kind of sort of political and scientific obsession with what is wrong and evil in the world.
- Nicholas Christakis:** 00:13:30 So it's very tempting to look around the world and see differences among groups of people. And increasingly we seem to be in a very divided and polarized world. But I think the really important story about human beings is what we all have in

common. And in fact, people in societies everywhere share fundamental qualities like love and friendship and cooperation and teaching. And in fact, beneath all our inventions, beneath our tools and our farms and our machines and our cities in our nation states, we carry, I think, these innate proclivities to make a good society.

Nicholas Christakis: 00:14:03

And the reason, I show is that this good society is shaped by natural selection. We are pre-wired as it were to make these good societies. And that's also the reason, not only that, it's good, but the reason that we share it, the world over, that all human beings are prone to love and to friendship into cooperation and all of these wonderful desirable qualities. So, the book tries to set the agenda for a kind of a goodness, a kind of universalism. It tries to push back against the kind of scientific obsession with the origins of tribalism and violence and selfishness, which are all also features of the world of course. But I don't think the bright side hasn't gotten the attention it deserves. So, I'm trying to do that in addition to everything else.

Demetri Kofinas: 00:14:46

It's funny how conversations become distilled and cheapened in the public domain. A largely meaningless example is how people became suddenly fixated on Bonobo societies. You know what I mean? Isn't that funny?

Nicholas Christakis: 00:15:02

You probably do know the Bonobos weren't recognized initially as a distinct species. They just thought there were some other kinds of chimpanzee. Eventually the work was done to show no, they're totally a different species. I forgot how many millions of years ago they branched off of the chimp line, but bonobos are completely different than chimps in many many ways. They are much more peaceful society. They have group sex, they use sex to repair relationships. They also have homosexual sex. They're much less violent. There're some arguments as to why they evolved this way as in their environment, they had less competition with gorillas, for example it's felt. So, bonobos are much more peaceful than chimpanzees and are different species.

Demetri Kofinas: 00:15:40

Well, one of the things you do in the book, and we'll get into it, is you look at other animal groups in order to derive insights about human beings, I also think it's interesting to turn that on its head and to say it's interesting to see what groups of animals, human beings at different points in time relate to or think of in relation to themselves. For example, moving from chimps to bonobos. What does that say about where we are as a society, right? It's an interesting point because the bonobos

would be a more liberal society. They're less violent. You could say more civilized in a sense. But-

- Nicholas Christakis:** 00:16:13 Achilles' men on the plains of Troy were known as the Myrmidons, right? The mirmigkia, the ants. They swarmed, his troop swarmed.
- Demetri Kofinas:** 00:16:19 Exactly. So that brings up another interesting point about what is the role of the individual in society, which is something I'd like to get into, you know. We did an episode with Shoshana Zuboff on surveillance capitalism and the pernicious role of these behavioral algorithms and to what extent are we capable of living in a hive society?
- Nicholas Christakis:** 00:16:37 I would say there's a lot to be learned from insect societies. The eusocial insects, the wasp, the termites,
- Demetri Kofinas:** 00:16:43 E. O. Wilson.
- Nicholas Christakis:** 00:16:44 Yes, exactly. And I think that work is all fabulous. But the problem is those societies are not like mammalian societies because there are clones. So, every member of those societies is genetically the same. That's a totally different challenge than the kind of societies mammals make, we make. So, you are kind to other people ... One ant can be kind to another ant because they're genetically identical. But that's not the case between you and your friends.
- Demetri Kofinas:** 00:17:07 Well, that's the coevolution component here, right. And there's, what do you call it, exophenotype?
- Nicholas Christakis:** 00:17:13 Exophenotype. Yeah.
- Demetri Kofinas:** 00:17:13 Yeah. So that's another phenomenon. We'll get into all of those things cause all these things are very interesting. But, to sort of stamp your point home about the book, it sounded to me from what you said and also from what I read, that we have differences, but our differences are small and arbitrary.
- Nicholas Christakis:** 00:17:29 Yes.
- Demetri Kofinas:** 00:17:29 But our similarities are deep and universal. And the universals that drive our similarities arise from a common evolutionary blueprint that is fundamentally prone towards creating good societies. And that this is a dynamic process where we have the capacity to create a culture. The culture we create stems from this social suite of I think eight properties that you identify. One

is the capacity to have and recognize individual identity. Others are love for partners and offspring, friendship, social networks, cooperation, preference for one's own ingroup, which is ingroup bias, mild hierarchy, which is relative egalitarianism. An interesting counter example is where you have chimp troops where it may get too intense, the hierarchy and-

Nicholas Christakis: 00:18:17

Then they kill them.

Demetri Kofinas: 00:18:18

Yeah, that would be a bad example. And we can get into some of these and we will with the shipwreck stories because these are so fascinating and enthralling. And lastly, social learning and teaching, which I also thought was really interesting. I had never thought about that before. And in your examples, you drive that point home. So maybe we could start with some of those examples. I mentioned the shipwrecks. It was my favorite chapter of all. I was excited to learn that there are many books that write about this and in fact one of them has an extremely long title.

Nicholas Christakis: 00:18:49

Oh those are 19th Century books that had these baroque ... The books, there's a whole literature. These were like best sellers in the 19th century for arm chair enthusiasts and they had these incredibly long and baroque titles. I'm going to look for one of them right now. Hold on, let me find it. Here it is. Here's the title. This is a book that was written in 1813. "Remarkable Shipwrecks or a Collection of Interesting Accounts of Naval Disasters with Many Particulars of the Extraordinary Adventures and Sufferings of the Crews of Vessels Wrecked at Sea and of Their Treatment on Distant Shores, Together with an Account of the Deliverance of Survivors." So, that would be one title of a bestselling book.

Demetri Kofinas: 00:19:29

A Homeric Epic.

Nicholas Christakis: 00:19:30

Yes.

Demetri Kofinas: 00:19:30

You have a small scale. You have this table in the book where you provide the name of the vessel or the shipwreck or however, the year in which it happened, the initial survival colony population, then the final numbers. And in some cases, the drop off is so tremendous and you're left to really wonder immediately when you see that you say, what happened, right? And you proceed to explain in some instances what happened. In some instances, within only a matter of days or weeks, people would come to cannibalism and murder and all sorts of mayhem.

Nicholas Christakis: 00:20:03 That was rare that I thought, actually to be fair. But yes, they did. Some did, yes.

Demetri Kofinas: 00:20:07 But in other cases, the most hopeless scenarios generated or were witness to acts and feats of great communal cooperation. I think the strongest example of that was the crew that got stuck in Antarctica near Elephant Island?

Nicholas Christakis: 00:20:25 Which was that?

Demetri Kofinas: 00:20:25 Elephant island?

Nicholas Christakis: 00:20:26 Not the Grafton. That was an Auckland island.

Demetri Kofinas: 00:20:28 It was the one that got caught in the sea that froze around the ship.

Nicholas Christakis: 00:20:34 That was the Shackleton expedition.

Demetri Kofinas: 00:20:35 The Shackleton expedition and they put on these dramatic performances and the dog sledding. I'd love to talk about that when, well maybe you could start us off with like a really voyeuristic one that involved murder and mayhem and-

Nicholas Christakis: 00:20:45 Well, I can tell you. Okay, so the origins of this chapter were the following desire: If you are a pure scientist, which I fancy myself and you wanted to do an experiment, you said, well what kind of society is innate? What kind of society would humans make without any guidance? What you would really want to do as an experiment in which he took a bunch of babies who were never taught anything, who are acultural, had no culture and throw them on an island. And let them grow up and see what kind of society they made.

Nicholas Christakis: 00:21:14 Now this has been called the forbidden experiment because it's clearly cruel and unethical. But a variant of this experiment had been considered since time immemorial. Various, Heraclitus writes about, I forgot which king it was and various other over the last-

Demetri Kofinas: 00:21:27 An Egyptian monarch, I believe.

Nicholas Christakis: 00:21:28 Yes, exactly. And then even in the 18th century, there was some kind of Austrian monarch and in the 15th century, someone else who were curious, these monarchs are about what would happen and they, and it is said that they took, for example, in one case a couple of infants and gave them to a mute shepherd

to be raised without language to see what kind of language they would naturally produce.

- Demetri Kofinas:** 00:21:48 Didn't those babies die?
- Nicholas Christakis:** 00:21:49 I don't know. We don't know the outcome of those-
- Demetri Kofinas:** 00:21:50 I remember reading a story about something like that happening, anyway.
- Nicholas Christakis:** 00:21:53 I don't know actually about those particular babies, but well could have, I wouldn't be surprised. So, this has been called the forbidden experiments. So instead I want it to find what I thought would be, you know, maybe some approximation of that. Natural experiments in social order and the book reviews everything from communes in the 18th century to kibbutzes to scientists in Antarctic science stations. But it starts with not intentional communities but unintentional communities for example, shipwrecks. So, there's a database of all the shipwrecks that is maintained, I think for divers. And I think there are something like 9,000 wrecks. There are many more ships that are lost at sea, but about 9,000 that were wrecked between 1500 and 1900. And we analyzed the database and we were looking for wrecks that provided the opportunity to make a society.
- Nicholas Christakis:** 00:22:40 We found 20 wrecks in which 19 people were stranded on the shore for at least two months. And then I found all the records that had been written by this and one person had to survive also is another condition to tell the story. So, I then got all the accounts that were published about this and all the archeological excavations of these wrecks and studied them to try to find some patterns about what kind of society would human beings make if left on their own and what features were associated with success. And my favorite example is of two wrecks in 1846 in the Auckland islands, which are south of New Zealand and just north of Antarctica. Almost a perfect natural experiment on the south of the island, you get the wreck of the Grafton, five men, so less than our optimal number, but five men are wreck and are stranded.
- Nicholas Christakis:** 00:23:29 And the same year on the northern part of the island, on the same island, in the wreck of the Invercauld 19 men get stranded. The men on the south in the Grafton and stick together, they survived. They all make it out. They build a boat, they navigate 200 miles, they get help, they come back, they get the other people. In the Invercauld, only three survived. The other 16 died. One of them is cannibalized, we think after

death. We don't think he was killed. And then to be eaten, but he died and then was eaten or parts of him were eaten and-

- Demetri Kofinas:** 00:23:59 A small concession.
- Nicholas Christakis:** 00:24:00 A small ... Well, it is big difference actually --
- Demetri Kofinas:** 00:24:02 I suppose
- Nicholas Christakis:** 00:24:03 Well, because there were also some wrecks like-
- Demetri Kofinas:** 00:24:04 You see this example. I have this guy eating the other person alive on a raft.
- Nicholas Christakis:** 00:24:08 Oh my God. Was that from the Le Tigre or the-
- Demetri Kofinas:** 00:24:11 I can't tell you. I'm not sure.
- Nicholas Christakis:** 00:24:13 No that was, hold on it was-
- Demetri Kofinas:** 00:24:14 It's not from your book. It's actually from the trusty, Google search engine.
- Nicholas Christakis:** 00:24:18 Well, no, there's a famous record. In fact, that raft, I think that, I'm just trying to remember the name of the boat. Give me one second. The name of that boat. There's another contrast in case, which is actually very disturbing in multiple ways. Yeah, the Medusa.
- Demetri Kofinas:** 00:24:30 That's the Medusa.
- Nicholas Christakis:** 00:24:30 I think that picture, probably the wreck of the Medusa, which is a very famous case from the Medusa, was an 1816. Right around that time just to go, let me step away from the graft and in Invercauld.
- Demetri Kofinas:** 00:24:41 I don't want to interrupt you. Why don't you go back to the, however you like doing it? As long as ... It depends on how good your memory is.
- Nicholas Christakis:** 00:24:47 No, I'll come back to the Le Tigre and Medusa, but the Grafton and Invercauld contrast, you know is astonishing actually and it's almost a perfect natural experiment. They're stranded on the same island at the same time. They never encounter each other and one has an incredibly good outcome and one has a not so great outcome and there are lots of, as you look through it, you can see many of the features of the social suite that lie at

the core of a good society are instantiated by the Grafton crew. So, they're friendly and cooperative and altruistic, have mild hierarchy. For example, one of the things that that crew did very successfully is they engage in teaching, which is another important part. So, they arrange to teach each other. They set up a school, they barely survived. They build a house on the shore and then once those basic needs are met, then they set up a school where they take turns teaching each other. They were also incidentally, all five were from different nationalities, I think French, British, Norwegian, Portuguese, and one other, I can't remember.

Nicholas Christakis: 00:25:43

They were all different nationalities. They took turns teaching each other foreign languages or teaching each other how to make shoes for instance. So as a result, they took turns being on top and bottom. So, no one was ever superior to anyone else. They did have a capable leadership and captain Musgrave, but he exercises a sort of mild authority actually in this situation. So, this group you can look peer into their lives. Their hut has been found. They didn't have hierarchical sleeping arrangement. It's not like the officers and the crew slept in different places. We have first person accounts, we have contemporaneous newspaper accounts from when they eventually are found and you can see the way in which they manifest the social suite. Meanwhile, on the other side of the island, Captain is a very autocratic guy. He doesn't really seem to care about his crew and very early on the norm set for every man for himself.

Nicholas Christakis: 00:26:34

And I'll say one more thing about this case before I contrast to some other things you mentioned. One of the most astonishing contrast between the two is when the Grafton wrecks the ship founders on the off the shore, Captain Musgrave is already sick. He has a fever and he's in his cabin and the other men could have made it ashore on their own and abandoned him to die, but they did not. Instead they set up a rope pulley system and they ferried his body ashore and their abandonment on this island begins with them saving a life. When the Invercauld wrecks on a different part of the island, 19 men make it ashore and one of them is very injured and they're at the bottom of these cliffs. They actually have almost nothing. They have two pounds of hardtack, they have a pencil and some matches.

Nicholas Christakis: 00:27:17

That's all that makes it ashore with them and their clothes are tattered and one of the men is injured and 18 of the men climb up the cliff and the abandoned the man. So that wreck begins with the abandonment of a person whereas the other wreck begins with a saving of a life and I think that also set the stage

communicating we're in this together versus we're not in this together that then forecast the destiny of these two crews.

- Demetri Kofinas:** 00:27:40 That's not the first time that happened in some of these examples, right? The initial conditions or the initial decisions made set the stage for the type of society that would emerge. What do you think accounts for that? Is it because first of all, another thing that is obvious in all of this is that leadership does emerge. Is leadership essential?
- Nicholas Christakis:** 00:28:02 Leadership is very important, but as I discuss in a different chapter of the book, we humans, we like leaders. There've been lots of experiments I discuss in the book. Some experiments with primates where a leader in a group is identified and then just physically removed to see what happens. And actually, when you take out the leader, paradoxically you get much more warfare, much more violence, like the presence of the leader tamps down on conflict in the group. I also discuss elsewhere in the book the ways in which human beings evolved. We think too there's something known as the self-domestication hypothesis. It's felt that we evolve to basically kill the most violent members among us. That exercising kind of absolutist authority. We would band together. Weaker members of us would band together and basically kill the powerful guy because he was a jerk. We didn't like him. And so, some mild hierarchy is important for social success, I argue and we evolved to manifest mild hierarchy.
- Nicholas Christakis:** 00:29:00 That is to say neither no hierarchy do we manifest, nor is good for us, nor too much.
- Demetri Kofinas:** 00:29:05 Would you say that it's necessary? I mean it's something that's required?
- Nicholas Christakis:** 00:29:09 Well, the primate experiments would suggest yes. So, for example, the primate experiments that were done by Jessica Flax Group using these macaques in the Yerkes primate research center in the south of the United States. Like I said, they did these experiments where they had these, and I show pictures in the book. They had these primate troops and then they physically remove one of the leaders and then all hell breaks loose. Everyone is jostling for competitive advantage. And so, one of the things that leaders do paradoxically is that they equalize social opportunities in the group.
- Demetri Kofinas:** 00:29:38 I mean it makes sense to me. I mean even-

Nicholas Christakis: 00:29:40 Can I say one more thing.

Demetri Kofinas: 00:29:40 Yeah, absolutely.

Nicholas Christakis: 00:29:41 The other thing leaders do is they facilitate the flow of accurate information, which is a very interesting actually function and that intersects as well with our teaching idea. So, one of the strengths of our species is our capacity to accumulate knowledge. So, each generation when it's born inherits all the knowledge and invention of all prior generations. That's extraordinary. Like you are born into this extraordinary wealth. If you're born today versus 10,000 years ago versus 1000 years ago, you are vastly richer in knowledge. It's like I just handed you millions of dollars, which you didn't have to do a damn thing to earn it just there it is all this knowledge and leaders facilitate that transmission of that knowledge.

Demetri Kofinas: 00:30:21 That's interesting. It's also interesting that it's authoritative knowledge, right? I mean there has to be an authority that is stamping that knowledge because that brings us back to a question of objective truth and what can be known and what can be discovered and what can we agree upon. We sort of find ourselves in the dilemma like that today I think as a society in a sense. But the reason I asked about the leadership issue is because in this case, one could argue why did this one leader's decision to leave this other person behind have to-

Nicholas Christakis: 00:30:51 But that wasn't necessarily leader's decision. The whole group decided.

Demetri Kofinas: 00:30:53 The whole group decided.

Nicholas Christakis: 00:30:54 Yes.

Demetri Kofinas: 00:30:55 But in your view though, does the group sort of decide that in an emergent way or in my experience in sports or in the corporate world or anywhere else, there is usually a defacto leader, a de facto for any group-

Nicholas Christakis: 00:31:11 Activity.

Demetri Kofinas: 00:31:12 Right. That sort of emerges and people take the lead, right. Wouldn't it be reasonable to assume that there was someone that would like, what was the name of that, the leader of that group, that sort of he, because in the other example wasn't it the other, I forget again the guy's name, but in the south part of the island that had said, no, we're not going to leave this person

behind or was it a different example? I remember reading that in the book. Actively saying we are not going to leave this person behind. People in mobs can exhibit all sorts of horrible behaviors.

- Nicholas Christakis:** 00:31:39 Well, mobs are another whole thing. I think of mobs-
- Demetri Kofinas:** 00:31:41 Which you have plenty of experience with.
- Nicholas Christakis:** 00:31:42 Yeah, I have some experience with mobs too in different times in my life as I talk about in the book. But mobs are kind of runaway sociality. There are kind of extreme manifestation of what are otherwise good properties. So, our desire, if you think about the freedom to assemblies in our constitution and in many constitutions, it's an innate desire. People want to get together with other people. But when mobs happened is, is you have a kind of over expression of this desire and people do something known as de-individuate. That is to say they lose their own individual identity.
- Nicholas Christakis:** 00:32:10 They surrender their own desires and agency to the will of the mob and often wind up doing things like burning witches that they might not otherwise do and it's also thrilling to burn a witch, right. Everyone is feeling righteous indignation and you're powerful. You can enforce your will. In fact, it might even be appealing to some people to be able to enforce their will even when they know the person is innocent because it's a real demonstration of your enforcing an arbitrary power. So now we, meander to another topic.
- Demetri Kofinas:** 00:32:37 Where does that come from? That's a despicable quality that we see today. We see that on social media.
- Nicholas Christakis:** 00:32:45 Yes, and there's another despicable quality that I also talk about in the group, but frame it primarily positively because I'm an optimist, which is this notion of ingroup bias that we prefer the company of people we resemble. We like our groups and you can show this even in the way we bonded over being, let's have in Greek heritage or you can show it with experiments with little children where you can randomly assign children to different color t-shirts. I discussed this work in the book and you know you give some kids arbitrarily a red t-shirt and some a green t-shirt and or green and blue. Let's pick more similar colors and all of a sudden, the green t-shirted four-year old's think the blue t-shirted had four-year old's don't deserve any presence.

Demetri Kofinas: 00:33:22 But sports fans know that. I mean the most vitriolic encounters have been historically between the Islanders and the Rangers.

Nicholas Christakis: 00:33:28 Yeah.

Demetri Kofinas: 00:33:29 This is something that we all realize and these are total arbitrary differences. They're purely which team I decide to support or associate myself.

Nicholas Christakis: 00:33:37 Right and of course an extended argument has been made that sports are phenomenal for the last 5,000 years. Precisely because they give us a safe and legitimate outlet for that natural tendency to identify with our team. Because now instead of killing each other in open battle, we have these prescribed ritualistic combat kinds of situations with champions and heroes and so forth, and it's safe. So, there's a whole theory of that too. But it is arbitrary just as you said, but now we're like three layers deep in our conversation and I'm losing the thread.

Demetri Kofinas: 00:34:08 Well, we started with the Auckland explorers, the southern and northern and teams, and anyway, the point about leadership was central to me because after both of those groups returned back to their home countries, I believe they were both from England. They wrote accounts of the story and the person from the southern part of the island was very critical of the northern persons leadership.

Nicholas Christakis: 00:34:30 Yeah. That detail is unbelievable. So, Musgrave and Reno were French, so Musgrave's account. These both became bestsellers. Musgrave's account was in English, Reno's was in French, been translated into English. They're richly illustrated. They're incredible accounts. They get back, I forgot to which island they get back towards New Zealand, I think on one of the New Zealand islands. And while there after they've all been saved, Musgrave opens up a newspaper, I think the Otago witness and reads about who was the captain of the Invercauld who had been on the island the same time he had. And then in correspondence Musgrave corresponding with one of his friends actually is quite critical of leadership and says, you know, was bad, didn't know how to save his crew.

Demetri Kofinas: 00:35:15 So maybe we could talk a little bit more about how this particular point applies to the world we live in today before we move into some of these other really interesting parts of the book, including pair bonding versus monogamy, which I think is really interesting. And just generally the romantic sexual love part of the book and also the human animal bonding elephants. I had actually read Lawrence Anthony's book on, I think he was

called Elephant Whisper, years ago then afterwards I learned a story about how those elephants had returned, had migrated back to where he had passed away in order to mourn his death.

Nicholas Christakis: 00:35:50 Yes. That's a story which I can't confirm that's true, but I know that story. I rely much more on the work of Cynthia Moss and I forgot Pool's first name right now, another famous ethologist, a person who studies the behavior of animals. These two women have led long-term research groups, also the work of Sherman De Silva who studies Asian elephants in Sri Lanka. So, all of these women have done long term research projects of elephants and elephants society. Here's an interesting idea. If you go and look at the friendship networks that elephants make, they're the same as ours. If you look at cooperation in elephants, they cooperate the same way we do. I'm oversimplifying a little, but this is approximately correct. They have mild hierarchy. They teach each other things. They have a kind of culture that they manifest. And what's amazing about the elephants is, is that the last common ancestor we had with elephants was about 90 or 85 million years ago, and that ancestor did not live socially.

Nicholas Christakis: 00:36:46 It's a little mouse like creature. And so, the elephants have independently by convergent evolution come to manifest the elements of the social suite. So, here's this other species that on its own reinvents the same kind of fundamental qualities that we do. And the reason I like the animal examples so much is because paradoxically, the more similar we are to animals, the more similar we are to each other. Because if in fact we can share the capacity for friendship with elephants and also whales incidentally. We're actually more related to Wales phylogenetically genetically than elephants. Wales branched off from us more recently in the past than elephants, believe it or not. If we can share the capacity for friendship, not just with chimpanzees, but with elephants and whales, we can share that capacity with each other. The universality of these properties is proven in part precisely because we share them with these other animal species. So, the book also delves into that kind of humanity, if you will of these animal species.

Demetri Kofinas: 00:37:45 Well, this also touches on the distinction between identity politics and common identity politics. This is something that we've talked about with Jonathan Haidt. We live in a time today where the focus is on in group bias or identifying-

Nicholas Christakis: 00:38:00 My group.

Demetri Kofinas: 00:38:01 Right, my group within the larger community. Let's divide each other up into groups and then basically focus on our differences and argue between ourselves.

Nicholas Christakis: 00:38:09 Which I hate that.

Demetri Kofinas: 00:38:10 Not only do I hate that as well, and not only is it despicable to encounter it personally as you did, but also it is alarming in the context of the communal problems that we face, right.

Nicholas Christakis: 00:38:24 Look, the book talks at length about the evolutionary origins of ingroup bias and there's a number of theories we don't know for sure. One very compelling theory is that the preferential treatment of people that we resemble, and here I don't mean physically resembled, but people who are in our group who have our marker, our tag, for example, they could resemble us in terms of language. So, you don't inherit your language. It's not biological, it's a cultural trait. There's a lot of arguments about how this preferential treatment of people we resemble must have evolved in an environment in which people were fighting over resources. There was inter group competition, so war likeness without friendship within and that these two things, this sort of ethnocentrism and cooperation co-evolved. In other words, we would not have been a cooperative species, but for the necessity and competing with other groups is the essence of the argument.

Nicholas Christakis: 00:39:17 Now, I don't know if that's true. There's a good chance that that's true, but regardless of the evolutionary path by which we've come to manifest this quality, it is depressing, right? It's depressing to me that we have this quality, which is also part of the social suite, which ordinarily works for good ordinarily like the sense of communality that we feel when we're with our people. That kind of warm glow that's ordinarily a good thing, but it can also break down the bonds of fellowship that are available to a much broader group of people, which I strongly endorse and which is certainly necessary for a well-functioning modern society. But the thing that's so interesting about the social suite is that it provides us other ways of reaching a cooperative, larger, whole. And those include not only redefining what counts as our in group. So now it's not only different segments that say we say we are all American and you can kind of hack our evolution by instead saying your group is the American group. Your group is the group that believes in the bill of rights.

Nicholas Christakis: 00:40:23 These are fundamental truths. Anyone can be an American. My parents came to this country in the 1950s I'm an American. They

became an American. It's not your religion or your ethnicity or anything about you. You just agree that you are part of this group. And so, you can hack our desire to be a part of a group by redefining the boundaries of the group to be bigger, which then optimally will lead us to see the shared bonds of fellowship. That's one way. And there are other ways too that we could do it.

- Demetri Kofinas:** 00:40:52 So I agree with that. That would certainly solve the problem at least during that period in which that were operational, that would solve the problem of ingroup bias within the country. But that still would require a group outside of us, right? If we're American, then there must be non-Americans, right? And so, the question is-
- Nicholas Christakis:** 00:41:09 Not necessarily.
- Demetri Kofinas:** 00:41:10 No?
- Nicholas Christakis:** 00:41:10 No I mean there may be anthropologists who have gone around the world in the 19th century encountering uncontacted tribes for the first time and most of them had a word for their group, which in their local language was the people. They were just aware of their own group. They weren't aware of any other groups.
- Demetri Kofinas:** 00:41:27 But did they all of a sudden see the people coming to visit them as others?
- Nicholas Christakis:** 00:41:31 They did at that point. I'm sure they did, but the point was, they had a sense of themselves as the people on this planet.
- Demetri Kofinas:** 00:41:38 Because they had never contacted another tribe.
- Nicholas Christakis:** 00:41:41 My point is you don't necessarily need to define, this is the boundary of our group. This is the totality of our group. This is everybody without necessarily in contrast to others. But I take your point like ultimately, and some people think that in thousands of years there'll be in a kind of science fiction sort of Kumbaya kind of way that there'll be like one global society. And this of course is a trope that's exploited and I discussed a little in the book by science fiction authors who say, you know, when the aliens come, suddenly it's us against them. So, all the people, we're all humans fighting against these aliens who cares about our previous divisions.

Demetri Kofinas: 00:42:17 Yeah, it's interesting. This has religious roots as well. Psychological roots, the ego, unity even sort of, I think Einstein said there's no such thing as a universe with nothing in it that there cannot be within the physical world, there needs to be bifurcation of some sort. But I wonder if it's possible for us to think about those distinctions as not necessarily being incarnated in a human being or in other social groups, but may be in problems, communal problems. So, for example, we have an environmental crisis. Some people would dispute that, but certainly whether it's carbon in the atmosphere, whether it's warming, whether it's plastic in the oceans, whether it is garbage, heaps of garbage or droughts or whatever else it is. There are issues that we face as a common species that we would be well to address communally. I wonder if that, speaking about hacking, if that sort of biology can be hacked to help us sort of approach some of these earth wide problems communally. Do you ever think about that?

Nicholas Christakis: 00:43:24 No is the answer. Actually, that's a really good question. So, I'm listening to you as you're building up to get to the question mark at the end of your question and I was like, okay, how am I going to answer this? I'm thinking, thinking, thinking-

Demetri Kofinas: 00:43:35 It's hard for me to get it out.

Nicholas Christakis: 00:43:37 No, no. But I don't think that the role of the other in inter group competition can be assumed by an abstract idea in the same sense. In other words, I don't think it can be us against pollution, right? But there are other aspects in which we are equipped to be cultural and normative animals to cohere around a certain set of ideas. You mentioned religion for instance, where I think the anti-pollution, just to simplify the point you were making, the antipollution ideology could animate us. And this in part has to do with our desire to be a part of a group and not deviate, which can be then abused of course by totalitarian or ideologically motivated political figures can get everyone thinking crazy stuff because we're all eager to think what everyone else around us is thinking. So anyway, so the point would be is like, I don't think that part of the social suite that to our ingroup bias can be hacked to have the other be an inanimate object or an idea. But there are other parts of the social suite having to do with our fealty to cultural norms that could be exploited in that fashion.

Nicholas Christakis: 00:44:45 So maybe-

Nicholas Christakis: 00:44:45 You could make it fashionable for all of us to clean the environment and then it would become a fad and everyone would

Demetri Kofinas: 00:44:51 Certainly there's been an attempt to do this, for example, with the war on cancer or the war on drugs, right? But I would tend to agree with you. I would love to get more into the social and political dimensions and contemporary society. Maybe we can do that in the overtime, but in the interest of time for this episode, let's switch gears to the work you did in the book on romantic relationships. I found this very interesting refreshing also because we live in a time where I mentioned the Bonobos, it seems that the popular desire is to find evidence for polyamorous society as being the core of human beings. But you make a point to discuss the extent to which monogamous unions or relationships exist. Examples of that, you certainly give examples of polyamorous or polygamy or polyandry. I don't know how you pronounce that.

Nicholas Christakis: 00:45:46 Polygyny and polyandry. And then polygamy is [foreign language 00:45:49] Polygamy is when you have one to many, many spouses.

Demetri Kofinas: 00:45:55 So polygamy

Nicholas Christakis: 00:45:56 Polygyny is just women. One man, many women. Polyandry is one woman many men.

Demetri Kofinas: 00:45:59 Okay. Okay. Okay, so [foreign language 00:46:01]

Nicholas Christakis: 00:46:03 Right, so they're all-

Demetri Kofinas: 00:46:05 Right, exactly. But you also talk about this thing about pair bonding, which is universal, which I found interesting. So, can you maybe explain that to me?

Nicholas Christakis: 00:46:13 Right. So, first of all, the polygamy and monogamy thing is a very complicated topic. Scientists have been studying this and puzzling over it for quite a while. They have, they're all these scientific papers that are called the puzzle of monogamy or the mystery of monogamy. And it's complicated because the expression of monogamy is buffeted by both biological evolutionary forces acting over millions of years and historical forces acting over thousands of years and they can cross cut each other. So roughly speaking, our species was a polygynous one man, many women till about, actually, let me get the precise date.

Demetri Kofinas: 00:46:50 The good old days.

Nicholas Christakis: 00:46:51 Yeah, well, no. Yes.

Demetri Kofinas: 00:46:52 I'm joking.

Nicholas Christakis: 00:46:53 Let me find ... I know.

Demetri Kofinas: 00:46:53 Joking for the politically correct crowd.

Nicholas Christakis: 00:46:55 I know. Let me just find, I'm not sure I can join you in that. Yeah. So just to give a very general timeline, our ancestors were polygynous until about 300,000 years ago. So, for example, our primate ancestors until we speciated and we became homo sapiens about 300,000 years ago, were one male many females. And around the time we became our own species about 300,000 years ago, we switched to being primarily monogamous. So, we formed long-term unions when a male and a female produced multiple children and raised them together over time.

Demetri Kofinas: 00:47:30 Was that associated with a major drop in violence?

Nicholas Christakis: 00:47:33 Well, yes, it will come to that too. I mean that's discussed in the book. So around 300,000 years ago, then around 10,000 years ago, we invented agriculture and we suddenly make it possible for economic inequality to arise and people no longer ours mobile and are tied to a specific spot in the land. And with the invention of agriculture, we flipped back to being polygynous.

Demetri Kofinas: 00:47:53 We could start collecting women again.

Nicholas Christakis: 00:47:54 Collecting. Yes, that's right. You have one man, to many women. That's exactly right. And you've got hierarchy, you got any quality. So, during the Pleistocene from 300,000 years ago to 10,000 years ago, we were relatively egalitarian society. And so, a single man can't monopolize many women. There's no way to, plus the women didn't want it. Coming about 10,000 years ago it flips because of the agricultural revolution. These are, I'm summarizing a complicated story that is not fully known, but this is what the best sort of evidence suggests. And then about 2000 years ago, or just before that, so about 2000 years ago, beginning in Greece where monogamy was seen as a way to build a stronger society. So again, for historical reasons and then spreading into the Romans and then worldwide, monogamy becomes a fashion again. And it's seen as a way of

focusing people's attention on to protecting the state in acquiring and amassing wealth.

- Nicholas Christakis:** 00:48:49 So male energy is now suddenly directed at acquiring wealth, let's say, rather than at a acquiring wives. So, there's, this pendulum is swinging back and forth, back and forth, sometimes for historical reasons, sometimes for biological reasons. So, the story is complicated. However, despite all this here and there, there's all this movement hither and yon, one thing that hasn't changed, it lies at the core of our mating strategy, is our pair bonding behavior. So human beings don't just form long-term unions with our mates. We love our mates. And this is whether it's a straight couple or a gay couple, whether it's polygynous or polyandrous, whether it's monogamous or polygamous, people love their mates. And this is a very fundamental quality that is seeing the world over. And I talk about one exception, the of the Himalayas, which managed to create a society where actually they only have sex, they're casual sexual encounters women live with their patrilineal homes.
- Nicholas Christakis:** 00:49:49 Men visit in the middle of the night to have sex with them, then they leave.
- Demetri Kofinas:** 00:49:52 They do them a service you right.
- Nicholas Christakis:** 00:49:53 The service. That's right.
- Demetri Kofinas:** 00:49:54 And they water their seeds.
- Nicholas Christakis:** 00:49:56 That's right. That's exactly right. They see that they provide, yes, that's exactly right. And Marco Polo encounters this society and writes about how crazy their ideas were, quote unquote. But even in that society, there are couples that fall in love. And for them that's the forbidden thing. And they run away to be together like Romeo and Juliet for swearing, all others. So even in a society that was seen to allow so much casual sex, that is still appears. And furthermore, I argue that this is sort of the exception that proves the rule because a tremendous cultural force has to be applied and is applied to efface what is otherwise a very natural and inevitable trait and human beings, which is to love one person over a sustained period time. Now, there are many exceptions to this. You can love multiple people, but there's love between each pair-
- Demetri Kofinas:** 00:50:47 That creates jealousy.

- Nicholas Christakis:** 00:50:48 Yeah, can create jealousy but you can you feel an attachment and of course many people have sex without any love, and I'm not taking a moral stand on this by any stretch of the imagination I'm just describing our evolutionarily shaped capacity for love.
- Demetri Kofinas:** 00:51:00 Just to be clear though, your point isn't that our tendency is to find someone and fall in love with them and stay with them forever. Your point is that over the course of a few days, over the course of a few weeks, over the course of a few months, over the course of a few years, over the course of a lifetime, depends when two people are together, they experienced this pair bonding that eventually in most cases it dissipates.
- Nicholas Christakis:** 00:51:22 Sort of. What I'm saying is, is that we could have a species in which we just had sex with each other. Most species are like that. They meet, they have sex, that's it. Off the male goes the female maybe sometimes the males involved, maybe not, but maybe they do it for one baby and then the next season they mate with someone else. So, but that's not the species we have. We formed a sustained attachment to the person with whom we reproduce and certain other animals also do that. We're not the only animal that does that. And in our species, this is felt as love. It's distinctive. It's a distinctive mating behavior that we manifest. Now we don't have to have love. I'm not saying you must have love but I am saying we do have love and every culture has every population on the planet has love.
- Nicholas Christakis:** 00:52:04 Even in cultures with arranged marriage, while love is seen as a risky and undesirable predicate for entry into marriage, it's nevertheless even in the huge countries that have arranged marriages, you know India, Nigeria and so forth, which is the predominant marriages in those countries, Indonesia, these are large countries. Love while it's seen as risky and unnecessary before marriage is seen as desired and necessary after marriage and in fact you find that in arranged marriages, they're no less loving than non-arranged marriages. Then love matches. The amount of love in those couples. When you look 10 years later is indistinguishable.
- Demetri Kofinas:** 00:52:42 There's a really cute story in the book of a woman who I think was an Indian woman that had been in an arranged marriage and her car broke down. She called her husband. She said, that was the moment I fell in love with my husband. He came, he was so concerned. We all have that experience of being in a relationship or hopefully most of us have had this experience where the person shows us a tenderness and a care, and that is of course, that's an evolved sense of love that may be, I think

maybe it's something that's sort of beaten out of the men in the society. I think girls are raised to be more receptive to that sort of attention. Whereas boys, I think we're at least when I was growing up, sensitivity was not a necessarily a desired quality.

Nicholas Christakis: 00:53:22 Well, I think there is a provocative set ideas that I covered at one point in the book about this topic about male and female ways of loving. This is a difficult topic to discuss in a scientifically precise way that's not misinterpreted. But let me give you a summary of the argument. So, the idea is there's a notion, there's a scientific principle known as exaptation. And exaptation is when an animal has evolved one thing that then unexpectedly is used for another purpose. And the most famous example of this is feathers. We think that dinosaurs evolved feathers as a kind of insulation and then lo and behold, now that you have the feathers there, it makes it possible to evolve the capacity for flight. So, feathers are a kind of pre-adaptation to flight and flight is an exaptation and extension, like a new thing you can do with a previously existing feature.

Nicholas Christakis: 00:54:19 Some people believe that the love that women feel for men in our species, in primate species and specifically in our species is an exaptation of the love that they originally evolved to feel about their offspring. So, we evolved. It was efficient. We could have been a kind of species that like a buffalo that gives birth to a baby and then off the baby suckles for a while on and then off it goes. But that's not the species we are. We are a species that gives birth to immature young and they require a lot of raising. And therefore, mothers who felt an attachment to those babies, those babies would survive, would be more likely to survive and therefore the mother's genes would be more likely to survive. So those kinds of mothers that had loving attachment to those kinds of babies and those kinds of babies that were able to elicit loving attachments.

Nicholas Christakis: 00:55:06 Eventually you have this attachment, this maternal child attachment, and then now that once that existed, the mothers could begin to feel that way about their spouses. So, the argument that is made that is speculative, but there's some evidence for it. And in the book, I also talk about how sexual relationships, literally the physicality of human sex-

Demetri Kofinas: 00:55:27 Nipples.

Nicholas Christakis: 00:55:28 Nipples, yes, and vagina and penises and all that stuff. Yes, all plays into this and the anatomy that we-

Demetri Kofinas: 00:55:34 Well, certainly penises and vaginas play a role.

Nicholas Christakis: 00:55:37 To reproduction but the specific anatomical way we have sex actually also has a part of this story. But anyway, the point is that amongst females, the argument is that love that females have for men are an exaptation of the love they used to have for their children. For men, even though we can also converge on love. So, men who think that their wife, when or their partner when she looks at him is looking at him like a baby are not far off. Okay. Or when women say my baby or whatever. The theory is that for men, men originally may have evolved the capacity to guard territory and say, this is mine and I'm going to repel enemies from this. So, one of the theories is that the way that men love women is an exaptation of their attachment to territory.

Demetri Kofinas: 00:56:26 You mean they see them in a possessive way?

Nicholas Christakis: 00:56:28 Yes. Now I need to stress that this is-

Demetri Kofinas: 00:56:31 I understand there's a giant caveat in all of this entire conversation.

Nicholas Christakis: 00:56:35 It's unclear. And I'm not saying that women are to be possessed in our territory. I'm not saying any of these things. I'm just saying that biologically and evolutionarily, there's a set of evidence that suggests that even though men and women love each other, and of course you can also have gay couples. So, men can love men and women can love women even though men and women in the case of evolution could love each other. And both feel love. The origins of that sentiment might have been different in the sexes. In one case, it might be an exaptation of the love of babies. In the other case, it might've been an exaptation of the attachment to territory and in both cases, we converge now to have this experience.

Demetri Kofinas: 00:57:13 I do think that-

Nicholas Christakis: 00:57:13 Anyway that's discussed more carefully in the book.

Demetri Kofinas: 00:57:16 Sure. And you're coming at it from a biological point of view. I think what's interesting that struck me is that sometimes you can be in a relationship and I wouldn't call it a healthy one, and I think a Freudian psychologist would give you a very clear explanation for why this is, but you may love, let's say if you're a guy, you might love your girlfriend as though she were your daughter, or you might love your-

Nicholas Christakis: 00:57:38 I hope you wouldn't that.

Demetri Kofinas: 00:57:39 -girlfriend as though she were your mother.

Nicholas Christakis: 00:57:41 I hope you wouldn't do that either.

Demetri Kofinas: 00:57:41 Oh, I'm not saying I would. But there are complicated psychological phenomena. For example, if you don't have a mother or if you had a horrible relationship with your mother, maybe-

Nicholas Christakis: 00:57:51 Well in the book, I talk about this imprinting ideas where they do these blind studies where these are discussed in the book where they show women photographs of men in which they in a computer fashion merge in a little bit of their dad and women tend to prefer men that looked like their father and men tend to prefer women that look like their mother-

Demetri Kofinas: 00:58:09 If they had good relationship with their father?

Nicholas Christakis: 00:58:11 I don't know the answer to that.

Demetri Kofinas: 00:58:11 I wonder because that's always ... it's very interesting to me. I mean this is a fascinating conversation. There's a woman by the name of Esther Perel. Are you familiar with her? She's written Mating in Captivity and most recently The State of Affairs, which is a book about affairs and yeah, very interesting woman. I tried to get her on the show eventually must, I hope to get her on. But this is an interesting area because I think one of the dominant trends or forces overwhelming society today with the change in income power between men and women has been the empowerment of women and therefore the shifting of, or maybe shifting is the wrong word, the changing. We're in the midst of this change or this reorientation around sexuality, social roles, gender identity.

Nicholas Christakis: 00:58:55 Yeah but, none of what I've said is morally prescriptive and none of what we've discussed specifies a way that human beings ... All I said, well, and this is an important distinction because there'll be misunderstood by many listeners, is the distinctive quality we have, whether we are in a heterosexual or homosexual union, whether we are in polygynous or polyandrous union is this sense of attachment to our sexual partners, the love that we feel for them and that is universal. It's seen in every society.

Demetri Kofinas: 00:59:23 I was taking it somewhere else, perhaps more controversial, which was just simply to point out that we have the costumes that we wear in our daily lives that we go about in our civilized

society. We're apes dressed up in nice fancy robes and then we have these biological yearnings and evolved behaviors. And I think one of the things that we're reckoning with as we change the costumes in society is that we're beginning to see where the rubber meets the road between the costumes and the underlying biological forces. I think that's an interesting thing that's been happening. People are grappling with it and it would be interesting if we began to see maybe, and again it's so controversial because we live in a time of relativistic morals and relativistic values where no one wants to believe. You know I mentioned E. O. Wilson before, I think it was E. O. Wilson who was heavily demonized after World War II in the '50s and '60s. It wasn't until the '70s that his ideas-

- Nicholas Christakis:** 01:00:19 No later-
- Demetri Kofinas:** 01:00:19 Even later
- Nicholas Christakis:** 01:00:20 I'd say the '80s.
- Demetri Kofinas:** 01:00:20 Right, that his ideas came into vogue. Yeah. Until his ideas came into vogue. And similarly, today there is this just great aversion for maybe different reasons. I mean in the '50s understandably it had to do with the recent experience of Nazism and Eugenics and everything that happened over in Europe. And today I'm not sure exactly what the reason is, but regardless there is an aversion to looking at biological sources of behavior. I want to let you finish your thought there and then we can move to the overtime where I hope we can discuss some of these further issues as well as I wanted to ask you some of your thoughts on the larger political dynamics and the country and maybe further some of your experiences working on college campuses.
- Nicholas Christakis:** 01:01:04 So it's very important that people not think that I am rejecting the role of culture in human affairs. In fact, I think culture is part of the social suite. It's one of the distinctive things that we are able to do as a species is to create a kind of cumulative culture. And what's amazing is there's a whole chapter on what is known as gene culture coevolution. How our culture and our evolution, our genetic evolution are in conversation with each other.
- Nicholas Christakis:** 01:01:27 How when we create certain kinds of societies that creates new selection pressures on us and one of the most famous examples of this is prior to about 10,000 years ago, there was no reason for any adult to be able to digest milk. You suckled at your mother's breasts, then you were weaned and there was no reason for you to digest milk because there was no milk to drink. You weren't suckling at anyone's breast after you were

two, you were weaned. So, people didn't have the capacity to digest milk in adulthood. It was a useless capacity. Natural selection had not favored it. It turns out that many times over the last three to 9,000 years, as human beings have domesticated cattle and other milk producing animals, this cultural invention, this fact that we invent this technology and then live as a herding group creates the availability of milk, animal milk so now suddenly those people that can digest milk in adulthood have an advantage over those that cannot.

- Nicholas Christakis:** 01:02:26 And so therefore the genes that make it possible for us to do that are advantaged and it changes the genetic constitution of our species so that now many many billions of people can adjust milk. We're a different entity than we would have been had we never invented using cultural means the domestication of milk producing animals. There are many examples of this. The way that we invent something for example we invent cities. The kinds of human beings that can survive in cities are probably different than the optimal brains and bodies that are needed to survive in the Savanna. So, when we invent cities, we create new selection pressures on ourselves, which feedback and result in a different kind of human being. As much as if you migrated our species from one environment to another, there would be different selection pressures on us except here culture, we create those selection pressures. So, there's a whole set of ideas on gene culture coevolution that are discussed in the book.
- Demetri Kofinas:** 01:03:23 Exophenotype?
- Nicholas Christakis:** 01:03:24 No, that's a little different. It's in the previous chapter and we can talk about that if you want. So, the exophenotype work at the genetic level.
- Demetri Kofinas:** 01:03:31 Well, so just to maybe make the larger point. One of the things that you're tackling in this book is this debate among many, this debate between nurture versus nature, nature versus nurture.
- Nicholas Christakis:** 01:03:43 It's both.
- Demetri Kofinas:** 01:03:44 And I think, well exactly. I mean your book highlights that. It makes that point lucid, which is that it isn't how much nature, how much nurture, it's that the environment is impacting our nature, our nature is impacting the environment and these things are co evolved.
- Nicholas Christakis:** 01:03:59 Yes.

Demetri Kofinas: 01:04:00 And that it's a dynamic process.

Nicholas Christakis: 01:04:01 Yes. So, I'd like to just put one last idea on the table if I might, Demetri. So that is to me the medieval theologians wrestled with the problem that they called Theodicy, which is a nice Greek word as well, which is how can we justify the existence of God given the manifest suffering and evil in the world? So how can we explain this? How do we vindicate our belief in God despite the failings in quote, his creation? And so, there's an old tradition in theology about this, but I see my book as a kind of work in sociodicy. How can we vindicate our respect and admiration and love for society despite its failings?

Nicholas Christakis: 01:04:39 Despite the fact that their selfishness and violence and tribalism and aggression and mendacity in the world. And so, I see the book as a work of sociodicy. And in that sense, it's like we can vindicate our confidence in our being social animals by seeing all the good, the love, the friendship, the cooperation, the teaching, and all of those qualities which are there despite all of these other bad things. And in that sense, the book also touches or is consonant with a Japanese aesthetic and philosophical tradition known as Wabi Sabi, which privileges ... In western art, the perfect pottery had flawless glaze and was perfectly symmetrical. But there's a tradition in Japanese pottery that privileges the crackled glazes and that slightly defective pot. And it's seen as a kind of flawed beauty. And that's what I'm interested in about human society.

Nicholas Christakis: 01:05:34 I'm interested in the fact that our society is that we human beings make are beautiful despite or maybe even because of their flaws.

Demetri Kofinas: 01:05:43 I think that's also why the statement and I think with wisdom we come to appreciate the flawed things, right? I mean we love the flaws and the people we love the most, we love their flaws.

Nicholas Christakis: 01:05:53 Yes. Also, true.

Demetri Kofinas: 01:05:54 Maybe not all of them.

Nicholas Christakis: 01:05:55 Well, we don't have to love violence and everything else, but we have to recognize it's part of the-

Demetri Kofinas: 01:06:00 But it's part of loving someone, loving their imperfections. That's part of them, right. You mentioned the Japanese art work. I think we discussed that with Simon Winchester in our episode on precision engineering because the importance of

craft and craftsmanship. It's very human, right. So, professor stick around. I want to get into, again some of the things we were talking about earlier around politics, but I also want to talk about our relationship to animals and our love for animals. Cause you, you devote a lot of time to that in the book and I think most listeners, I think I'll have an affection for one animal or another. I love animals, but that's an interesting thing for our regular subscribers. You know the drill. If you're new to the show or you haven't subscribed yet, you can learn more about our subscription at hiddenforces.io/subscribe or go straight to patreon.com/hiddenforces and you can subscribe to the overtime to get access to this week's audio or to the autodidact or super nerd tears for access to the transcripts and run downs to this week's episode. So, stick around.

Demetri Kofinas: 01:07:02 And that was my episode with Dr. Nicholas Christakis. I want to thank the professor for being on my program. Today's episode of Hidden Forces was recorded at CMD design studio in New York City. For more information about this week's episode, or if you want easy access to related programming, visit our website at hiddenforces.io and subscribe to our free email list. If you want access to overtime segments, episode transcripts, and show rundowns full of links and detailed information related to each and every episode, check out our premium subscription available through the Hidden Forces website or through our Patreon page at patreon.com/hiddenforces.

Demetri Kofinas: 01:07:48 Today's episode was produced by me and edited by Stylianos Nicolaou. For more episodes, you can check out our website at hiddenforces.io. Join the conversation at Facebook, Twitter, and Instagram at Hidden Forces Pod, or send me an email. As always, thanks for listening. We'll see you next week.