Right, welcome to the Restless Politics Leading with me, Alistair Campbell.

And with me, Rory Stewart.

And we have our first Nobel Prize winner in front of us.

We haven't had any prize, have we?

No, we haven't had any Nobel Prize.

I mean, it may be cleverer than you.

I don't know if you've...

He's definitely on a par, definitely on a par.

If I were doing this interview because one of this person's students got in touch with me and said, if you're interviewing really great people on your podcast, you've got to get Sir Paul Nurse.

That is the first and last time I shall use your know-hood.

Is that okay?

I'm absolutely delighted about that.

Well, why do you tell us why you got the Nobel Prize?

What is the thing that you did?

Well, I got it mainly because I was very lucky, it has to be said.

That's modest.

Not modest, actually, as many scientists who deserve the Nobel Prize.

What it was for, and I got it with two other colleagues, what it was for was for working out the mechanism by which the division of a cell undergoes a division from one to two. Now we're all made of cells, billions of cells, we all came from a single cell, so it should be of interest to everybody, both you and everybody listening to this.

And the control of a division of that cell from one to two is fundamental to the growth of all living things, all reproduction, and goes wrong in cancer.

What we did was worked out the mechanisms by which that's controlled.

I want to go to your back story.

We interviewed John Major recently, and I think of all our interviews so far, he probably wins the most interesting back story award, but I think you're knocking off the top perch.

I was telling your life story to my daughter this morning, and she was like, oh my God. So very, very briefly, you were born in 1949 to a young woman who until your 50s, you believed to be your sister, and her mother, your grandmother, you believed to be your mother, presumably because in society then, the shame of your biological mother falling pregnant when she did as she did meant it had to be hidden, including from you until you discovered it filling in a form to go to America in your 50s.

Absolutely correct.

Extraordinary, isn't it?

That is mind-blowing.

And the connection to John Major is, strangely, he was moved with his dad and mum to a house, which they were renting from someone that he didn't discover until decades later was in fact his brother, because again, his father had concealed a whole part of his family. What is it?

Tell us a little bit about how that happens and what that suggests about your family and

that period.

Well, I came from a working-class family, was brought up in Wembley in North West London where Football Stadium is.

We lived in two-bedroom flat, there were seven of us, and quite crowded and so on, but very happy and so on, but it was not exactly luxurious.

And I had two brothers and a sister.

I was the only one who stayed at school after 15 and I became a geneticist.

So I used to think about why was I different from my brothers and sisters, but I never

dreamt for one moment what actually the truth was, what Alistair has just described, until I was applying for a green card in America and I applied for a green card and I was turned down.

I am the only person I actually know of who has ever been turned down for a green card. I mean, I know people are, but in academic circles it's usually straightforward.

At the time, I had a Nobel Prize, I was president of University in the US, and I was knighted. I'd rather actually admire them for turning me down to be perfectly honest.

What they wanted was a proper birth certificate.

What I had was a so-called short birth certificate, which doesn't name your parents, it was actually invented in the Second World War just after it because of the problem of illegitimacy that you've just been describing.

I asked my parents, who were my grandparents, why I had a short birth certificate, and they said because it was cheaper than the bigger one, and I released it.

They were still telling you that when you were 50?

Well, they had died by then.

I asked them when I was a teenager or something of that sort.

But they never ever sat you down at any point in your life and said, we're not actually your parents, this is your mum.

They did not, and I think the reason was ultimately was that my mother married somebody else when I was about two and a half.

And there's a very touching photograph, by the way, of she getting married holding my hand with one hand and her new husband with the other hand because she was about to lead me with her parents to go and start a new life.

So your grandparents weren't, not biologically, but in practice, your parents?

They acted as my parents.

I had no idea they weren't.

Did you call them mum and dad?

I called them mum and dad.

What did you call your real mum?

Miriam, her name, sister.

I used to sometimes say to my friends, because they were a bit elderly, I used to say, it's like being brought up by my grandparents.

But I was being brought up by my grandparents.

When were they born, your grandparents?

They, my grandparents on that side came from Norfolk.

They actually, they themselves were illegitimate too. And I don't know their fathers. I mean, I barely have a male progenitor in my entire line. But they, this is, we're talking the 20s now. They worked in the big houses and quite often happened to illegitimate children and they met there. And so I knew I didn't have much background. And so you believe that they'd been in their 40s when you were born? Yes. And who was your father? Right. Well, we'll come to that in a moment. I just wanted to say what happened that was, as I discovered later, was my mother got pregnant at 17, she was sent to her aunt in Norwich. We lived in London, as I said. And my grandmother came back with me pretending to be my mother. They were protecting her, of course, for the reasons you've said. And they provided me with a good home. I mean, everybody was doing their best for me. I mean, it wouldn't happen now. Nobody would understand it now. No, my daughter didn't. It was a little sort of dull, maybe. Because they're a bit elderly. Because they're a bit elderly. Yeah. And your father? Well, until a few weeks ago, I had no idea who my father was. I've now got a lead, and it's not yet sure, so I'm not going to talk about it here. But I suspect in the next couple of months to know who my father was. When you're already in your 70s? 70s. So look at these two major transformations. For 50 years, I think I get my parents wrong. And then 20 years after that, I discover who my father is. Well, let us know when you've cracked that particular code. It's quite an interesting story. So if it is, if it's correct. So then you set off on this amazing life. You didn't go to Oxford or Cambridge. You went to other universities in Britain. Eventually ended up in the University of Edinburgh. And begin to establish yourself as this extraordinary scientist. And I'd love to get a sense of that development. Where did your interest come?

Why did you decide to become a biologist, not a physicist? And what really is the day-to-day life? Is it spending 10 hours a day peering at bits of yeast, trying different things with a thousand different petri dishes? I mean, give us a sense of that whole flavour of that 15 years, I guess. Let's start with just why I ended up there. Because I was the youngest child in my family, it was almost like being an only child, despite having brothers and sisters, they were much older than me. I had a long walk to school. And I got just interested in natural history. And I just looked at, you know, the flowers, the birds coming, walking back in the evening, the stars coming. I looked at planets. I got a little telescope. I looked at rings of satin and things of this sort. And really, I had, I suppose, just a natural curiosity about how the world works. It was a deep curiosity. Like Alastair, I was actually interested in words. And I wasn't guite sure whether to go down a humanities route or a science route. In the end, I went for science. And I went for biology over physics, for example, the physical sciences. At the time, they used to say, I went to a boys' school. They used to say, the boys that can do maths do physics. And the boys who can draw do biology, because we just had to draw things under the microscope. Actually, I wasn't very good at either. But anyway, I ended up doing biology. And the reason was, I thought physics, and one of my daughters is a physicist, actually, physics has got such big ideas. How could I ever contribute to it? Biology has got lots of little ideas, mostly, with occasional fantastic ideas like Darwin and so on. And I thought I could contribute something to that, whereas physics is just too big, if you see what I mean. And so I gradually moved into biology. I wasn't too good at exams. I found it difficult to get into. In fact, I was rejected by every university.

I went to and I worked as a technician in the Guinness Brewery, in part, Royal, in fact. But eventually, I got in, University of Birmingham. And as I was longer in, if you like, academia, I got better and better, because I didn't have to do exams, which I was pretty hopeless at. So what actual school qualifications did you get, then? Well, I went to Harrow County School, which was a school where Michael Petillo went, for example. It was the other Harrow, Rory. The one at the bottom of the hill, I like to say, rather than the top of the hill. And that school had a very good biology teacher who worked on badgers. And Keith just died actually a couple of months ago, sadly. And he was at least 20s. He was fantastic. I got really interested in just how living things worked. And he just kept going. And what it meant was, as exams got less and less important as you go on, I got better and better. Can I just sort of bring out one of the interesting things? And so we're in the middle of this extraordinary France is Crick Institute, which is on the edge of this amazing redevelopment of King's Cross, which actually is a very, very exciting urban redevelopment city. You're right next to what was Google Deep Mine. So you're right in the heart of AI, and next to the fancy St. Pancras Hotel redevelopment. Get us from that point of getting better and better and studying at universities to the sort of big central bit of your academic life. And then move us on to where we are now and this next stage. Yes, I've always been a researcher. I still have PhD students. And that is central to my working life. And I spend about half my time following my own curiosity. It's a privilege to be able to do that. I mean, a real privilege. But it turned out that I've quite good at running things and guite good at setting things up. And I sort of felt in my sort of strange brain

that if I could do that, then it would be like a payback which would allow me to just pursue my curiosity. It may sound a bit odd, but I do see just following your curiosity is a privilege. And I paid it back by doing things like the Francis Crick Institute. This institute came about because I was running a smaller institute of the Imperial Cancer Research Fund. And I had the idea of merging three institutes to make this big institute where people could follow curiosity, the same thing as drives me. But we would have a discovery institute, but we would capture things that would be good for society, but not try and direct them. And that's a very powerful way of working which we can explore a bit. And just to explain to listeners, so there was an institute that you were running which was in Lincoln's infield, so it's sort of old fashioned place. And then there was another institute up in Hendon. And somehow you brought them together into this extraordinary new development here in King's Park. And just who's actually working in this building now? What are they doing? Well, there's 1500 scientists working in here. They are bringing with them across the whole spectrum of the life sciences. I mean, it's the biggest institute in Europe under a single roof of this sort for sure. And what we put together was similar institutes, one in Lincoln's Inn, one in Mill Hill, another one in South Mims actually, to make this big institute which meant we could be interdisciplinary. I had no departments or divisions. It's a bit of a market in fact. And I focus on hiring the best people from around the world. And we get four or 500 applications for every job group leader position that we advertise. It's completely better than anything we could do in the US.

The origins of it, I had the first idea for it around 2000. The first idea was I wanted to put it in the Millennium Dome because nobody had any idea. It was a really stupid-It was a rubbish project, wasn't it? It was really, really stupid. I don't know about the project. We always knew it would become a rock venue. I knew I shouldn't have brought it up. We did a staging operation through the turn of the century. And now all the bands in the world want to play there. I'm so sorry, we were getting all so well. Always planned. Anyway, so this was the first idea. And of course it got nowhere because it was stupid. It wasn't built for that. And anyway, then I was working in America and a colleague of mine, Keith Peters, got hold of me and said, you know, about this sort of merger, there might be a site here from the British Library. I didn't know about that. And I thought, well, this is interesting. And I had a conversation with Gordon Brown, which kicked this thing off. And Gordon Brown helped us by getting us this site. I got to admit it was a bit of a struggle because Camden, for good reasons, we're in Camden, wanted the site, put a shopping mall up, I think, pay for primary schools. You can't, you know, all good things. We now help them a lot with life sciences education. But it was complicated. But Gordon did give us a site at half price, still 75 million, and that kicked it off. Then it went into the next government, okay. And there was a bit of a tussle at the beginning because it was a project that could be canceled because it was a capital project. And it was time of austerity. Yes. So I then went and saw George Osborne because it was on the edge of being canceled. And George was very positive about it

and actually pushed it over the line. So in fact, it was both a labor and a conservative initiative that brought this thing. It's unfair, unfortunately, you said that. We were hoping to get into a fight about who was actually gonna take the credit. No, because as we came in, so narrow-minded is Tori Rory, as we call him, that he actually said, you must love walking to this place because this is one of the great achievements of the coalition government. So I'm glad that you rebutted that with your career. I have rebutted it. I've said it's across the duval between you. And it's been a great success. As in Zeta's The Dome. I want to thank you on both sides. Okay. Though you're both sort of in the middle, really, anyway. And with that, we're going to the break. Okay, so I wasn't very good at science at school. So have you developed something, discovered something that will help find better treatments and cures for cancer? And the link to cancer is that, of course, cancer is about cells duplicating at a very, very rapid pace. Exactly. So the unifying idea behind all cancers is cells growing and dividing out of control. So understand how that division is controlled is actually central to understanding cancer. You can't really understand any cancer without thinking about this. In other words, it gives you the conceptual framework for thinking about it. Because cancer's all about dividing and dividing and dividing and dividing. It grows. The cells have got to start growing, then they've got to dividing. So that means in thinking about cancer,

which is a complicated disease, you have to understand that. But secondly, it turns out that because it's so central to this process that drugs which inhibit it or alter it have turned out to be really useful in dealing with some cancers. So particularly breast cancer, there's drugs now that are coming on the market that are proving to be very effective. But there's another point to be said there. This was discovered in the 1980s and it's taken 30, 40 years before this work can be applied. Okay, now. Have I answered your question, by the way? Kind of in guite a political sort of way. But we can come back to it later. Let me ask you this question. What makes a good scientist? Science is a spectrum and this is often understood. There are commonalities across that spectrum. You know, the pursuit of truth, doing good experiments, testing things and so on. But if you are at one end of the spectrum, as I am, vou discover stuff. You discover stuff. And that is not very well pursued if you are too top down. If you try and direct people, you actually stuff the creative spirit. I mean, you know, it's like telling Picasso to paint, you know, something in blue or red or whatever. I mean, it's just daft. But if you go to the other end of the spectrum where discoveries are turned into useful applications, it has to be top down because you're trying to cure a disease or something of this sort. And you need to know where you are in the spectrum and how to deliver it. Paul, so this is really a connection between the two of you in this conversation because when you're saying to him,

well, come on then,

how is this actually useful for cancer? Is at the heart of the issue that you're dealing with all the time. And I guess the cliche about you is you're more on the yeast end of things. You're more about big ideas, Picasso. And potentially there are people who say, we need more directed stuff. We need people like Alistair saying, come on then, how are you actually gonna turn this into an application for cancer? It's all very well. You're finding out this basic stuff. Am I right on that? You're more on the curiosity side. You're absolutely right and we need both. And often what I find is that my colleagues can either push one or the other when actually you need both. And the way we work here is to hire hugely creative and people who are a bit out of the box and let them discover stuff which the white-haired committees can't really think about. I mean, by the time they get programmatic strategy, they've lost it. I mean, they just come up with the absolute obvious. I mean, I have to say. But then you need something else. You need to capture. You don't have a mechanism for capturing discoveries that could be useful. And they may not be developed here because the sort of person like me who's a bit anarchic is not the right person to develop something. But we are not snobbish about that. We say we want to do that. We'll do it with a company. We'll do it with a biotech. And if people want to go somewhere and get it going, or we start things here, we do all of that. So it's discovery coupled with a great capturing process. To bring you in on this, I guess the frustration,

if you were a more kind of directed practical end of things that people might express, if you're going to be controversial towards Paul, you'd say, it's all very well. You found out this wonderful thing. But now we want to apply it to leukemia. And Paul might say, well, I'm unfortunate. I don't have these specialist leukemia scientists ready to do this. Or you might say, OK, I'll take another example of science. You might suddenly say, OK, you found out this wonderful thing on physics on lithium. But we actually need to work out how we manufacture lithium membrane at scale. And the Germans, your favorite people sometimes, are sometimes said to have a more integrated practical system that they have a system which is many different examples of this, but a couple of really strong examples of systems that really integrate with what businesses want, with what medical professionals want. Whereas this is more kind of blue sky, all right? Well, let's take Germany. You have a series of what's called Max Planck institutes, which are like here. Right. Then you have a series of what are called Fraunhofer institutes. Which are the more practical set. There is a problem with that, though, because they are separate, as I said. Now, what we've done here is to be Max Planck-ish, but not snobbish about it. Max Planck-ish, I have learned my word of the day. Max Planck-ish. Susie Dent have got one for you. And what we do is capture stuff in there. Of course, people who are interested in societal good, in driving the economy, all of which depends on science. Let's just get that out there. I mean, science is essential for it. And I hope we might get into a bit of a discussion of where we are, and Horizon Europe, and all of this sort of stuff.

But if you just invest in application.

The sort of Fraunhofer stuff. Yeah, the Fraunhofer stuff. George Porter, who is a Nobel laureate and president of our society, he said, it's like building a building with insecure foundations. You can go higher quickly, and then the whole thing cleanses. And you need to have a balanced approach, discovery and application for societal good. Now, this podcast is called The Rest is Politics. Why do you think there are so few scientists who become politicians? So you mentioned Germany, Merkel's background was scientific, Thatcher's background was Margaret Beckett. Beyond that, I can't think of many. Therese Coffey. I can't think of that in effective politicians with a scientific background. It may have something to do with the characteristic activity of science. A tension on very fine detail rather than the bigger picture. I'm going to be provocative here, an obsession with truth. If you're in politics, and something gets sort of roughly like this, it doesn't matter. My hands are going up and down next to each other. It perhaps doesn't matter which way you go, vou make it work. That isn't how scientific discovery. And how big a problem is it for you that within the political world now, we are essentially in a post-truth culture. Here, we have been America, we have been, and particularly on issues like the climate, say the climate crisis, where that has been so heavily politicized, how difficult does that then become for your world? Right, well, the first thing I'd say, I don't think the solution is to get lots more scientists in politics, in fact. What we need is politicians who've got a different skill set,

who take science seriously and take truth seriously, and who will establish good contacts and interactions with scientists. And how do you feel about that's going? The UK is not too bad. I've worked across the world, I've run an institute in America, I advise across the world. The UK is not too bad. I mean, you know, modern science was invented here. We are very poorly supported, and I've done a review for government, which we can talk about in a few of you have time, which absolutely demonstrates that. But we need a political system which will take advice from science and listen to it. Now, what we see particularly in the US is, of course, with the Republican Party, a disregard. Or I should say, part of the Republican Party, there's a part that's been utterly eclipsed. It used to be called the Rockefeller Wing. I ran the Rockefeller University, actually, in the US, which was completely different. And they've lost the plot. And that, well, you're the political people, but I think social media has a lot to do with losing the plot. Quite honestly, we unleashed it on the world without thinking about the consequences of it. And that means anybody can say anything they like, and they're not challenged. And that's undermining it, for sure. And we need to kick back on it. So just to remind people, the government has tried to be serious about this. And we'll get on to whether they're actually delivering. But they talked about putting more into research and development, setting up this thing called the UKRI, UK Research Institute. And they've set up a new department of government called DSED. Tell us about that. Tell us about the structure.

Tell us about whether. And who did that? Is that Rishi Sunak thing? Was that something that came from Boris Johnson? What's where does this new thing come from? Right, UKRI came from me, actually. I did a report for government back in 2015, 14. We had eight or seven or eight research councils. They needed to work well together. But we also needed, in my view, a single voice to talk with government. And I saw UKRI as making the single sort of major case to governments. So that's back in the sort of Cameron Osborne time. Yes, that came from the coalition. I think some of my colleagues are critical of it because they see it's got distant from them. My idea was that the research councils, which are a group together, would look after the scientists. And UKRI would look after the politicians in a funny way. And I still think we've got to sort of get there. But that was the idea. Because I wanted a powerful force for science, a powerful voice in government. And I think UKRI can do that. DSED is a great idea, in my view. And that's been brought about in the last months. I don't know why she's sitting there because he's interested in science. Yes, he's put that together. And I was doing a review. And I was going to recommend such a thing. And in actual fact, it happened before my recommendations came out. So I think that's a very positive thing, too. So the vision is there. Now we have to deliver it. Just to push back a little bit on Roy's attempt to portray the current prime minister as this great pioneer of science, you mentioned Horizon. And Rishi Sunak has got what he calls Horizon Plan B, which I believe is called Pioneer. We talk a lot about Horizon.

And it's true that you say you get a lot of people in politics who talk a lot about things without necessarily knowing all the time what they're talking about. Just explain what Horizon Europe is, why it's so important, why you're desperate for the UK government to get back into it, and why this Plan B is perhaps not guite what it's cracked out to be. Yes, I've been very critical of Plan B because I think it is woefully inadequate for the problems that we are facing. In fact, I think it's mainly there. And tell us, Paul, just for a second, tell us about Horizon first before we talk about it. I will tell you about Horizon first. Because most people don't know what Horizon is. OK, Horizon is the, if you like, the science discovery vehicle for the European Commission, for the European Union, but has relationships with some countries which are outside European Commission, like Switzerland, which has now just been excluded because of political reason. Israel plays in that territory as well. Now, there's three major, if you like, sort of foci for science in the world. Europe, North America, and Asia based on China. And if you're outside that, you're outside the collaboration that is necessary to generate high quality science. Bigger money, more scientists, more universities. Yeah, it is big money, but there's too much obsession with the money. And that's actually what's going wrong now when we can get to it. It is actually the network, the collaborations, the fact that you can pull on a population of 350 million to get the best advice, to get the best initiatives going, and to drive science in a proper way. That's the vision of Verizon. And that's what's being lost in the negotiations that we're going on at the moment. And just to be clear, we didn't have to come out of it

who are in it. We didn't have to come out of it. And in fact, it was part of the deal. We would be in it. It was stalled by the European Union saying, until you've sorted out Northern Ireland. You can't be in it. You can't be in it. So none of the issues cost. No, Northern Ireland's sorted out. We could have instantly rejoined, but we didn't. And why didn't we? For the scientists, we simply do not understand 15 Nobel Prize winners wrote to Mr. Sunak. In January, February, I played a major role in orchestrating that. And he took him two months to reply. So I mean, he's not really on the ball always with that stuff. I happen to say I was a bit disappointed about that. But 15 Nobel laureates said this is absolutely essential. All the academies say it's essential. Every sensible scientist you talk to want to do it. Yet six months later, we haven't delivered it. And you've put your finger on the problem, which is the government is trying to say that, in plan B, if they can't get the right relationship with Verizon, they'll put up as much money. It's not that they're not going to put the investment in. You're saying it's not just about the money. It's about all these networks of connections across Europe that you'll lose, even if you put up the equivalent money. Absolutely correct. And I don't think Mr. Sunak understood that initially. I've heard that he's getting round to that. But that's the point. We spent 40 years building this, and it's being destroyed every month. Everybody, I can recruit from around the world, best scientists in the world. I've lost one of them because they wanted to be part of this. I try, every time I recruit somebody from around the world, North America, anywhere, the first question they ask

is, are you going to join Horizon? Honestly, they say, and I have to bring through it and say, yes, I think we're susceptible to it. And presumably they want us in, in part, because we do have a good science base. We used to be leading in this. We could set the agendas. We still can. They want us in there. And we are fiddling around with no vision over this, just accounting and sort of trivialities, in my view. So what it would be? Sorry, I'm sorry, I'm passionate about this. And there's no scientists involved in this who actually can drive it and say how important this is. It's unfair to make you do this. But play devil's advocate for a second. What do you think a senior civil servant or someone close to Rishi Sunat would say? Paul's not explaining what the problem is. The reason we're actually irritated and we're not signing up on the dotted line is? The reason they're not signing up, I think, could be partly financial, possibly partly political. The financial bit would be, because this has been running for a year, two years already, it's a bit complicated to see which ones you buy into, which ones where you can't buy into. And therefore, you might be losing or gaining some money. So somebody might be saying, no, no, no. The European Union is not being fully fair here. They're making us pay for lots of stuff and they're not getting us the benefit of the sum of stuff. And it isn't lots of stuff. Let's be clear about it. They've already said, you haven't been in for two years. We're not going to charge you for that. But there's certain initiatives which were set up. But let's be honest, it's ideological. This is because they cannot bring themselves to say that Brexit was a mistake and they cannot bring themselves to say that they've damaged our size best.

That's the second point. I was going to say it's partly financial and spreadsheet and sort of accounting. And it's partly political. Maybe they're frightened of the right wing of their party or they don't want to admit that this is something good. But I tell vou. Because it's Europe. Because it's in Europe. But it's hugely damaging on reputation. The other point, which I'm sure you wanted to make as well to Rory Paul, is that all these other things where they said that it's like the common agricultural policy, they were going to help the farmers. And the chemicals industry have got an identical problem where they were part of EU reach. This massive database worth \$2 billion. And they're now having to build their own core UK reach. And they no longer have access to that. And that's ideological. It is. Look, I'm wearing a scientist hat. And you should listen to me for science. I have also a normal member of the public. Brexit is a disaster. Disaster top to bottom. We have to be part of a regulated system. We've moved ourselves out of it. We have to replicate it. It'll cost more money. It got in just by a couple of percent. And yet we went for a very hard Brexit. That's not democracy. I mean, it isn't democracy. They should have said, OK, we voted. We go out, but we try and maintain as many things as we can. That's what I was trying to do. Yes. I know you were trying to do it. And you were right to do it. But there's an ideological. Because people like this were pushing so hard for the second referendum.

I'm going to let you squabble between yourselves. But there is an ideological thing here, possibly. Now, I sort of think that getting into so much. Nobody sees any advantage in Brexit. It got in there under problems about immigration. Were they solved? Give me a break. No. But science is critical for the future of our country. Working with Europe is critical for the success of our science. This is a no-brainer. There's a vision here which is being lost due to excessive interest in spreadsheets and accounting, losing the vision of what science is. We're one hundred percent with you. Let me, you know, we are because we even understand it now. Right. Your politics. So you've been a member of the Labour Party. Forty years. Ever thought of leaving? Any point at which you thought of leaving? No, I haven't. I've got frustrated and irritated. I thought Corbyn was a disaster, I have to say. You know, I come from a working-class background. I saw what my grandparents did. You know, they had to have all their teeth out because it was cheaper to do that rather than pay for dental care. I was told these stories. I can't forget it, you know. And so I have been there, even though I've been frustrated and irritated. I'm rather a member of the party, but I'm very low-level. I don't actually do... But you have been a patron of scientists for Labour. I have been a patron together with David Sainsbury, for example, of scientists for Labour. But I have to admit, I've only been to one meeting. OK. But how... What do you see? No, whenever I went on the Today programme, they mentioned it, I have to say. Ah, that's to sort of try and dismiss your view. Exactly. I couldn't quite ... They seem to have dropped it now, but I think was the climate change denialist complained. What's your hope, if we did get a Labour government,

of what would you like to see from a new government in relation to their approach to the world that you operated? Well, I think what we've got, if we look at the Conservative and the Labour positions, the Conservatives say that science is very important, and we're going to be a science superpower, but are very tardy on delivering what is needed, OK? Labour doesn't talk about it very much. In fact, it's a bit under the radar. I'll talk about we want a better health system or we're going to have green economy, but they don't think about how the science has developed. I'd rather that the Labour Party was more up about science, so it could show the same interest and then hopefully actually deliver something. And the report you did for the government, the business... The most recent one, because I've done two. The report on research and development innovation. You concluded, actually, that we were way, way, way down the international lead table of where we need to be. It's really extraordinary. I have to say, I was really surprised because the policy wonks weren't talking about this. I mean, you know, I read this sort of thing. I mean, we talked a lot about... And I'm responding, you know, I'm a bit in that territory. And we were worried about industry spend on science, which actually was much higher because the Office of... The ONS had lost nearly a percent of spend on science, one percent of GDP, because they weren't accounting for it. But listen to this statistic. We are aiming to be a science superpower. The OECD nation, 3537, that's not G7, G10, it's a lot of nations. We are 27th in the league in how much money the government spends on science. And am I right in saying, Paul, that actually, unfortunately, the UK has been lagging behind for many, many decades compared to the US, Germany, Japan? It's been lagging behind on the total spend. And it's got worse on the amount of research that government itself performs. Because successive cuts in departments on research have reduced that to one-third of what it was in the 1980s. So there's been two things that have happened. We've lagged behind increasingly in the total spend and we've gone down dramatically in the amount that government spends. And I'm in that category because we're partly government spending here. So places like this are much less now than they were 30, 40 years ago.

Can I just...

Alistair, how much, under new labour, how much did you talk about science, think about science? I'm very interested in this point that Paul's making, that Kerstama is not majoring on science. We're not hearing a lot about him from science. Is that something that was top of your agenda? And is it something that you think should be top of Kerstama's agenda just in terms of retail politics, elections, the public? Well, it's interesting. You just mentioned the person within the Labour government that we looked to for science strategy. And I think because he was actually so good, I don't know whether Paul would agree with that, but I think David Sainsbury was one of those very rare people who came from business, adapted as a minister in a way that very, very few people from business do, and was absolutely superb. So I think it was... Tony Blair wasn't this. Tony Blair was always fascinated by science and technology. But it wasn't one of his priorities, in part because I think he felt we had a really good minister who made sure that science was being pushed into the agenda. And I imagine that would be one of the reasons why Gordon Brown did fight so hard for you when you asked him to help get this place set up. So not top priority, not up there with health and education, et cetera, but that was how we got on the agenda. So the government has committed to spend 2.5% of GDP on research and development. Is that something that Keir Starmer should be committing to that target, putting science at the centre of the labour's agenda or not, in terms of winning another election? Well, I wouldn't define it as science. I do think that part of labour's... what's missing from their messaging and their strategy at the moment is a sense of how are they going to build this economy of the future, in which life sciences are fundamental. So I think it's making it part of that bigger picture. I'd start with the vision of what science can deliver. That's the first point. When it can save the planet.

Well, think about what it is.

It drives the economy, it increases productivity,

it brings societal goods like improving the health of the nation, and protecting the environment. All of this has its origins in science and needs science. Science should be central to all policy. It isn't. But having DCIT may help there, but it needs to be central. Then you've got to think about the money, and you mentioned the 2.5%. And in a way, that's confused us, because most of that money isn't under government control. I mean, much of it comes from elsewhere. So we've lost what is under government control. We're not talking about it. If I was to tell you that the percentage that government spends on research is 0.12%. And the rest is the private sector? On the work that it does. And the total that it funds other places like universities and so on, including that 0.12%, is 0.46%. That's what we should be talking about. And there, we're pathetic. If we take, for example, South Korea, Germany, which we've mentioned, the US, we're looking in the order of double that. Is that why we are 27,000? That is why we are 27,000. Why don't you just sit down with your scientist and political hat on and write a science strategy for Labour? Well, I could. I could. But actually, it's almost written in my report, because I wrote it for the government. I mean, it's there. All you need, actually, is for them to endorse it and say they're going to rapidly increase the government's spend on science. Well, what we could ask Kier to do is to say, actually, Michelle Donolan, who has, personally to me, said, she's strongly in favour of it. I mean, so that's one thing that Labour could do. She's the Minister of Science. She's on maternity leave, comes back in a couple of weeks. I've had very good conversations with her. We've not had that public endorsement out of the Labour Party. I'm sure they would do, but it's not high on their agenda.

Well, lots of them listen to this podcast, Paul. Lots of them listen to this podcast. And I think, as they're listening, they will be like, oh, this is a problem. This guy sounds like he knows what he's on about. This is a problem. And he's asking the right place, and Labour need to get into this. Because he's not often to be found praising Michelle Donolan. No, and if you notice, I didn't. But we need to deliver that. And we need to focus on the government spend. So let me finish my final challenge, Paul. I guess to probably get people like Alistair, I've met Ventura requires performance here, and others really engaged, they really want to see the practical benefits. And maybe the challenge is this Fran offers more German practical implementation. They might turn up here and say, Paul, you're a Petri dish person. You like people blue sky thinking. You don't have enough computational biologists. So maybe if you could come together and say, this is how I'm going to get the computational biologists in. This is how we're going to really demonstrate the practical stuff. I'm going to have a more directive part of my department. Then maybe the politicians will get more excited. He's basically suggesting that Labour slogan should be Max Plankish. By the way, Google DeepMind have labs in here. I mean, we're in close contact with them. It goes back to the spectrum. We need the spectrum. I happen to be a discovery scientist, but I'm not in any way saying we don't need the other. I'm just saying we have to be clever about it. And if you read my report, which is very good if you're having trouble getting sleep at night, by the way, because there's 155 pages of it, you'll see that I talk about a number of things, not just money,

but the diversification of how we do research, because it's all focused in universities at the moment, which are not always the only places to develop things. Places like this can do it. But importantly, we have to increase the permeability of ideas, discoveries, people and technologies between all parts of the system. I went round and talked to 250 institutions and so on. I'd go into a university and they'd never heard of the public service research establishments. I mean, they didn't even know what they were. You go into the PSREs, as they call, they know they can recruit easily from universities. It's all siloed. We have to break it down. Vision again, vision in driving it. Now, just let's maybe wrap up on this. Just tell us what you think we did well and did badly during the pandemic. We were heavily involved here, actually, in setting up testing. And that's what I'm going to focus on. We failed miserably, in my view. I mean, and by the way, I'm not a medical scientist, but in my view, in setting up testing. And that was the only thing at the very beginning that was of any help for reasons I don't have to explain. Now, what we realized here is that when everybody was being sent home, that we had all the equipment to do testing, we had all the expertise to do testing. We're a publicly funded body. So rather than send people home, we could set up testing for free, testing for free, which is what we did within weeks, and connect with local hospitals and local care homes. Because it's not just testing, it's the logistics of connecting to the front end. If Paul then, they wouldn't have been able to help all their mates get rich on the back of it, would they? Well, we can go there in a moment, but let's just think about what did the government do?

Which was Matt Hancock. This was Hancock, but I mean, with others. That wasn't such a stupid idea, but it obviously wasn't going to work for nine months or 12 months. So we went through the first wave when most of, with the greatest deaths. In my view, what contributed to that was the lack of testing. Now, what we did, and I wrote to Hancock, I got no reply, we can come to it again in a moment. Should have sent him a WhatsApp. I said, look, do this. Yeah, he does WhatsApp. Do this. I said, take all the university medical schools and institutions, okay? Connect them to local hospitals and get them back in work and doing testing within weeks. We were doing a couple of thousand tests a day, within weeks, and at one stage, we're doing 10, 15% of all testing in the country. I mean, this is absurd. I wrote to Hancock together with Peter Ratcliffe, two Nobel laureates, okay? No reply. I got no reply. No, I have to tell you. I got no reply from Hancock for three months. And then I got a reply from a civil servant. Once it was all over. It was... I want to come on in this. You keep saving that Richie Sunak's running this professional ship. That's twice now. A guy who understands this world inside out is telling us stories about, you can't even get a reply to letters from these people. Let me try to put them in. That never happened in our day. Let me try to push back. I think what we're hearing is a government that makes huge errors.

I was very angry with the way government did COVID. Horrified that people are not replying to letters. But also a government that has been trying to put science at the center of its strategy. It talks about science. It set up new departments on science. So they don't want to reply to letters from a Nobel Prize winner. It's a mixed picture, Alastair. Says he's trying to make sure that you can hit the middle ground here, right? Genuinely, George Osborne cared. Genuinely, he provided a lot of the support to get this on the ground. It's just rude. Richie Sunak cares about science. Just set up a new... But doesn't reply to his... Yeah, yeah, yeah. Set up a new department on it. And the fact is that Labour hasn't yet put science at the center of their strategy. So it isn't just about COVID, where I agree. Absolutely agree. I was horrified by what the government did in COVID. But it's a bigger issue, isn't it? Because it's not just Britain. It's every country in the world is now going to have to think about science, particularly about artificial intelligence at the moment. And this question of how politicians who don't really get this stuff ... Which is most of them. And that's not a criticism. And a public that finds it very difficult to get their head around this stuff and isn't voting about it. How do they do that? Yeah, sorry, I'm trying. I think politicians can get it. I'm more in favor of your class than you are of yourselves, in some ways. The political class.

The political class. Or at least in this country. It's not the class that he recognizes. Of course. And I think the best politicians get it and listen to it. The problem we've got is, of course, they don't think it's a vote winner. And they've got to be mature and rise above it. Now, the rhetoric was there. Boris had the rhetoric. OK. but didn't deliver beneath the rhetoric, as we saw. That's astonishingly. We do need money, but we need vision. And absolutely, what is an open door is Horizon Europe. That's how... It's already in the budget. And we are fiddling about... You know, it's rather like Nero, the violin, and Rice Rome is burning. Rome is burning, and we have to stop it. Now, Paul, can I finish on a... Sorry, I'm getting excited. No, no, no. We like excitement. Can I finish by just saying, you're talking to... It's a cliche question. You're talking to young people about a life in science. Looking back at your life so far, what it is that has brought you satisfaction, what's brought you frustration about your life? You know, it's a privilege to follow your curiosity and work out how the world works. It's an amazing privilege. It won't pay as well as other jobs, but I go into work every day thinking, what will we discover today? It is fantastic. It is hard. Most of the time, you don't discover things. Most of the times, you fail. It is psychologically difficult for those reasons, but it is fantastic. And it's for the public good.

I mean, it's not just the sorts of things that are driving the economy and productivity and so on. Absolutely important as they are. It also contributes to our culture, to our civilization. what we know about ourselves and the world. All of this has to put science central to any government of the future. I'm going to close with a question that we actually had from one of our listeners a couple of weeks ago, who asked us, did we think that the world was more likely to end as a result of nuclear annihilation, artificial intelligence, or the next pandemic? So my question is, how confident are you that we're going to be around for as long as it's taken us to find out this amazing cell division that you discovered? I'm an optimist. I think we, A, will deal with things with our knowledge. Eventually, maybe not as effectively as we should, but we will deal with it. I think that on the whole, in some countries, the political classes, I have... I'm nervous about, I have to say, and I mean... You're telling me U.S. Republicans, you're terrifying. U.S. Republicans, but we have to look at Russia, too. I was recently in Kiev, actually. I met President Zelensky, I've become an ambassador for education and science for Ukraine to try and rebuild some of that. I mean, very moving to see all the destruction that's happened. But ultimately, I think we will deal with these things. I mean, we worry about nuclear war. Remember, I'm a child of the 60s. I mean, then we will inherit the nuclear annihilation. We somehow got through that. The pandemic is a shock to us. And this could have been a worse pandemic, and we're still not prepared. You watch what happens here. You know, we were all talking about it when we were dying of it. Now we're not dying of it. Oh, let's worry about the mortgages, you know? I'm not saying mortgages are not important.

It's gone off. Is it AI? AI has been overdone. AL let's call it... You know what? Part of the problem is the name, artificial intelligence. Isn't it already spooky? What we're doing is machine learning. Let's start calling it machine learning, and then we don't scare the shits out of everybody, like we do when we say AI. So call it machine learning, getting all this data and looking for patterns within it and how you can deal with things, and already it gets less worrying. Machine learning is developed by human beings with algorithms. We can control the algorithms. We need some regulation here. bit like the social media. Don't let it just all go out of control and then try and put the genie back in the bottle. Get to grips with it now. Fundamentally, I think the human race will survive and we'll deal with it. Good. Well, as we're in Keir Starmer's constituency, I suggest that as a result of this podcast, to which, if he's not listening, I know that most of his team are, that you write to him, and you explain to him that you've been trying to write to the government, but they tend not to write to you like this. But would you like to come into this amazing building and have a look around, and can we try to put science at the heart of Labour's economic strategy? And I'm sure he'll come to the building, but get a commitment out of him. Pin him down. Get him to commit how much money his government is going to spend on science,

because at the moment, the government's not spending enough. Yes. So I have to, you know, you're looking for the middle here, okay? I've had both prime ministers, not the present one, but all the ones before. I've had Keir in the building. I've explained all of this. They are all on board, but Labour's got to start talking about it. Tory's whilst in power have got to put the money in and get us into Horizon Europe. That's the first quick thing, then I'll stop moaning about them. Very good. Thank you so much, Sir Paul. Thank you. It was a pleasure talking to you. It was a pleasure talking to you. And let us know when you find out about your dad, do you promise? I will do. Thank you. It will be a month. It will be a month. Right, Paul Nurse. So, Alastair, I think we need to finish with a huge thank you to you, because Paul Nurse made his way to you through an email from one of his young scientists, and you pushed us to do it. I was initially, I must say, a little bit skeptical. I thought, wait a sec, here we are interviewing all these political leaders, and now we're interviewing a man who's a distinguished biologist. But I thought it was terrific, really, really good. So thank you. Well, shout out for Billy. Billy is the guy that we, after you left, we went and spent some time with Paul and some of his researchers and some of the team, and Billy,

we found Billy in a very darkened room looking at a large screen where he was watching yeast cells and waiting to see them break. Well, I wanted to, actually, I would have loved to ask Paul Nurse, and maybe the listeners wouldn't have liked her, but I would have liked to ask him much more about the science. I wanted to know, for example, what more remained to be discovered about yeast. I mean, he found out these incredible things about yeast, but one of the things that fascinates me about science is the sort of known unknowns. all the stuff that still remains to be discovered. I was talking to an ornithologist recently who was saying that lots of very basic information about birds we still don't know. We still don't know where some of them migrate. We still don't really understand how some of them reproduce. I mean, it's fascinating how little we still know about the world. Well, I loved it. After you left to go back to Jordan, we spent a bit of time, I spent a few hours there, actually, and I met this wonderful German chap called Andreas who was running this sort of big team. They have this sense, so you say the known unknowns, and I think this came through from talking to Paul, and it definitely came through talking to some of the other scientists there. It's like they're just on this constant exploration and never guite sure what they've found. And actually, this guy admitted they might do all this research and find nothing. Well, the sort of charming moment where Paul, having got a Nobel Prize, suggested, and I think it's right, I think all of them say this guite modestly, there is an element of luck involved.

Whether you actually,

I mean, obviously it's much, much more than just luck because they have to work incredibly hard. They have to have some very shrewd guesses. A lot of the skill is working out what to embark on. But still, you know, you could put a lot of time in and not find out what you were hoping to find out. The other thing I loved about him was just he was just such a sort of nice person, wasn't he? And from such a kind of extraordinary background, there was a humility about him that was pretty stunning. I also couldn't, yes, incredible. I also, we didn't push him on it much and maybe he wouldn't really have given us much on it, but I cannot imagine the psychological impact of discovering in your fifties that the people you thought were your parents, your grandparents, the person you thought was your sister, was your mother and she effectively left you when you were two years old. And he found that, am I right? They were all dead by the time he found out. So he couldn't really even talk to them about it or get any clarity about why they did it. I mean, he's remarkably kind of understanding, but I would have thought you'd find it very, very unsettling. Yeah, although he told us a little bit more afterwards about this thing, about how he's on the brink of finding out who his father was. And his father also dead. Yeah, yeah. So, I mean, it's awful, isn't it? To find all this out when everyone's gone and you can't talk to them. Yeah, and yeah, he seemed such a balanced character. He did, he did. And he's obviously, you know, he's very, very, you know, proud labor supporting and labor scientists. But I thought, from the point of view of agreeing disagreeably, that she had a really good, balanced tone, wasn't overly ideological. I think I'm sure is a brilliant choice for the Crick Institute.

Oh, to listen, talking to the people who work there, they just absolutely adore him. This is why it was interesting, I think, on, he was political, he's obviously very political in terms of his support for labor. And yeah, at the same time, he desperately wants both parties to be much more committed to science and its importance within the kind of national and international life. I was genuinely appalled by the thing about Sunak and Hancock not replying to his... You made that very clear. The letters thing, really. And the letters thing really struck you. It really, it just offended me. But also, not of replying to letters, it's a pretty basic bit of civil service procedure, which you need to sort out. I mean, if I was the minister, I would be completely enraged that letters aren't being replied to for two months. Particularly when they're coming from things like Director Craig. No, but Rory, you can't blame the civil service. There's no way. Wait, wait, wait, wait, wait, wait, wait. How many letters do you think Rishi Sunak receives? Hundreds of thousands. How many letters do you think get in front of him? Very few. I don't think what happened. I don't think what happened in this case. Rory, I've worked there. I've worked in that place. Have you ever gone there? In a well-run Downey Street, there is no way in the world that a letter sent in by a Nobel Prize-winning scientist offering advice and help at a time of national crisis is not making its way to the desk of somebody who at least knows whether that goes to the prime minister. That's my point. No, I agree.

I agree on your point. And I would say that the system's no good if you're spending two months replying to a letter. I'm agreeing with you. I'm agreeing with you. But you're trying to blame the civil service. I'm trying to blame. No, I'm not trying to blame the civil service. You are. And I'm blaming the whole... You're blaming the blob. You're doing the Tory thing of blaming the blob. The whole system, Alistair. The whole system's no good. And it's true if you're a business, a charity, a government, there's no excuse not to spend two months not replying to a letter. Actually, whoever it's from. Yeah. One of the most impressive things in Downey Street, and obviously it's changed now because of social media as well, but the correspondence department, I think part of Fiona's job was she had a sort of big thing. And she used to send me these notes about we were getting 7,000 letters a month on railways, 9,000 on health, 20,000 on health, whatever it was. And also, you know this. Even when you've been at the sort of level vou've been out of the cabinet or me working in Downey Street, you still get a little buzz out of getting an official letter that says, dear Mr. Campbell, thank you for your comments. Yeah, yeah. And you want to feel you've got that point of connection. So even if it is just a sort of standard letter, it is basic political sense and common decency. Big screw up there. Couldn't agree more. I talked to somebody straight after it who worked in German science. So I said, you know, I was pretty shocked by the statistics that Paul Ness was putting forward

about how much the British government invests in research. And they said, that's right, but actually Europe is terrible on it too, that we're all so far behind the United States. And then actually Britain is still the place that most of Europe looks to, particularly for basic research, despite all these German entities and institutions. Within Europe, it's Britain, but within the world, the US is just spending so much more in percentage terms as well as in absolute terms. And encourage people to go and visit. It's a beautiful building. I was lucky because I was there in person, which I'm not often. And the Crick Institute is part of this general development around King's Cross. So just on the edge of St. Pancras Station and the beautiful refurbished St. Pancras Hotel and the British Library and all this kind of stuff. And it's open to the public. You can go in and look around and visit. And it's definitely, definitely worth doing. It was a wonderful... Oh. it's fantastic. It's fantastic. And also the COMS team, because we did the interview shortly after I'd just done question time. And the COMS team, Abby and the COMS team were saying, do you think we could get question time to maybe do an episode from here? No, I think that'd be a very, very good idea. So if you're listening to guestion time produced production team, get yourself down to the Crick. Get Paul Nurse on the panel and you're away. And I'm gonna put it, I'm gonna abuse my position on this to say that I've come across a very brilliant American scientist that I'm gonna try to sell you on, Alastair. Now that we've opened the door to interviewing scientists, extraordinary communicator,

fantastic on the brain and on stress, studied colonies of baboons, knows more about stress in humans than our brain development, you could believe. So maybe one day we could get another scientist on because I thought Paul Nurse was amazing. What's his name? Oh, I thought you were gonna ask that. Oh, fucker. So you're trying to sell me a scientist who's maybe forgotten. Go on, go on. And without telling me there's any political view of this chapter at all. He's so great. He's absolutely great on this name thing. Dr. Sapolsky. Is there a political element in his life? No, I just think you'd love the whole thing. He was at Kenya, Uganda, but I just think the centrality of stress, I think leading is the point. I think just in the same way as you sometimes want to interview leading footballers or leading actors, come on, we've done Brian Cox. It's my response to Brian Cox. Okay, okay. I think you'll love him. I think he's funny and outspoken and beautiful. Okay, thank you guys very much. All the best. Bye-bye.