Angela Saini: dispelling the myths of science past

Angela Saini is a British science journalist and author. She presents radio and television programmes on the BBC, and her writing has appeared in The Guardian, The Sunday Times, Prospect, New Scientist, New Humanist and Wired among others. She has won a number of national and international journalism awards. She spoke to Emma Pettengale, Managing Editor of The Biochemist.

Thank you for taking the time to talk to us. For those readers who haven’t read or heard of your two bestselling books, can you introduce yourself and tell us a little about what you do?

I am a science journalist and broadcaster; I cover a range of science topics but have focused the last few years on bias and what science tells us about race and gender.

There have been many mistakes made over the centuries, and it’s important to understand how and why they were made. Inferior discussed how the male domination of science for many decades has impacted what science told us about women, and how misunderstandings are slowly being corrected. My new book Superior looks at the history and damaging legacy of race science.

What drew you to the world of science journalism? How did you get started?

I studied engineering at university, and as many people do, I got involved in student politics and started writing articles for student papers. I had every intention of becoming an engineer, but one career advisor suggested I consider journalism because of my passion for it, so I decided to give it a shot. Fortunately, engineering degrees are pretty bankable, so I felt I could always come back if I needed to. I was an everyday reporter at the start, covering news, politics, social affairs, but my science background was useful in interpreting statistics, things like that. When I entered science journalism later, I tried to bring the same kind of investigative skills to my reporting.

There are so many issues that affect us all, which are based in science and technology and play out in our politics. Science moves forward, evolving ever faster, and research culture is changing with it. What do you think is the biggest challenge in science over the next 5 years?

I don't know if I'm qualified to answer that! I am heartened to see that diversity and representation are being taken far more seriously – science is improved when we have better representation. Going forward, what we need is a more
nuanced understanding of inclusivity and what it means. It’s not just about having different faces and equality — although that is important — we also need to understand the perspectives of people who have been historically marginalized or excluded. These perspectives are not always readily accepted because they can lie at odds with the current ways of doing things and the culture.

Institutions need to make concessions for people who have lives at home and still want high-flying careers, such as when they need to travel to conferences or arrange childcare or elder care. Gender roles are shifting, and this is becoming almost as much an issue for men as it is for women. I have a 6-year-old, and his dad, like many more men of my generation, is an active and involved parent alongside his partner. My husband does as much childcare as I do. ‘Work at home’ needs to be done by someone after all, and subsequent generations won’t have the sexual division of labour we have historically seen — academia and industry need to come to terms with that. In most families, for financial reasons, both parents have to work. I grew up in a family where my parents split everything 50:50, so I didn’t think that it was unusual for men to share the work, and this is how I live.

I’m also concerned about power dynamics in academia. One of the reasons bullying and harassment occurs at such high rates in academic institutions is because of the hierarchical structures, which make it very easy to exercise power over more junior people. Those hierarchies need to be broken down.

Another big area is incentives — I am working now with journal editors, looking at how poor-quality research is published and can lead to overhyped claims and amplification of bad data. This reflects the problem with incentives in research — it’s not just about getting ‘sexy’ results; science should also be accurate and responsible, with research done in an ethical way to minimize mistakes, misinterpretation or abuse.

Where do you feel there are improvements still to be made in sex difference research and understanding?

I look in *Inferior* at this, picking apart the historical work on sex differences. It is important to continue research into sex and gender. But we need to recognize that, historically, sex-based research has often been used to paint the sexes as fundamentally different and women as inferior, so we need to be cautious of people who make grand claims of differences between the sexes. At the same time, there are some biological differences that can’t be ignored, for example in health, but I don’t think they are as profound as some people claim they are, at least there’s not the evidence to support that.

Sarah Richardson and Heather Shattuck-Heidorn (both at Harvard University) have shown that while it is important to investigate sex differences, sometimes they are conflated inappropriately with other factors. For example, the FDA recommended women take lower doses of the sleep drug zolpidem, thinking that women would clear the drug more slowly from their system. However, while women on average sometimes do clear the drug more slowly, this is likely to be due to their body weight — not their sex. Therefore, If we are using sex or race as a variable in research, we need to think about why and interrogate the reasons — are sex and race being used as proxies for other variables, such as weight, geography and if so, shouldn’t we look at those instead? I prefer a more nuanced approach and a broadening of the variables we use. We need to be careful about essentialism when talking about the differences between ‘men’ and ‘women’ — there is no ‘typical’ man or women. Every person is different, and dividing all people into two buckets airbrushes over that complexity.

Recently, there have been efforts to revive the links between ‘race’ and IQ — via genetics. What are your views on this trend?

Intelligence research has a very fraught history, littered with racism, and there is still a strong thread of racism within the community. We have to be wary approaching the subject because of its legacy and the previous mistakes that have been made.

Race is a social construct, with no genetic or scientific basis showing consistent differences between groups of people. There are people outside science and academia who make claims of differences between natural groups in terms of IQ. We can’t use the data we have now to make broad inferences about population-level differences. Work linking IQ to race is severely flawed on so many levels, it is hard to assume that the people making these claims are not politically motivated.

Dominic Cummings (Chief Adviser to Prime Minister Boris Johnson since July 2019) seems to be suggesting we stream children in education based on their IQ/aptitude for learning as predicted by genetic analysis. What are your thoughts on this?

What we know is that polygenic risk scores are not more reliable than school testing when it comes to measuring ability. So, number one, I don’t see the point — I don’t know what it would do in terms of efficiency in the education system. If there is a large heritable element of intelligence, even the most hereditarian of psychologists believe it accounts for only half of what we see, and even then only if the child is raised in a healthy family where their needs are taken care of. Sadly, this is not true for all children in the UK, with many living in poverty, and until you are able to meet their other needs, they cannot...
meet their natural potential. It’s just ridiculous and deeply, deeply problematic to assume otherwise.

Much of the 20th century was spent on the fallacious argument that all we are is our genetics – this deterministic approach to social policy was a huge mistake and historically disastrous. If we want all children to be the best they can be, we need to ensure a consistently high standard of education, make sure they are well fed and looked after and not neglected. Genetic testing is not the way to do it. There are many people who do very well in testing, and in life, because they have been trained very hard, tutored at the best schools and pushed well beyond other children, and therefore they overperform compared to if they were raised in an everyday family where children don’t get this support. All inputs into a child’s life have an impact.

In the current journalism culture, ‘experts’ are being shunned in favour of those who can shout the loudest. What is your take on this, and can you see a way forward?

This is what I am working on tackling at the moment. Last summer, I set up a group to challenge pseudoscience because this is an issue very close to my heart. Although a lot of my work critiques science, the reason I do this is because science is one of the best ways we have to understanding ourselves, and I want it to be the best it can be and produce the best quality of information.

Particularly on the internet, the culture has driven marginalized voices to the front and more moderate voices to the back. There’s also the rise of clickbait articles, because people like to be shocked. The debate has become very simplified, so people on the extremes with simple arguments and a simple narrative control what we are exposed to – we need to deal with that.

I believe regulation is needed. Internet companies need to be made responsible for the content that appears on their sites, and subject to the same rules that society is held to offline, the standards for what is legally acceptable. Very many countries have such regulation or are considering bringing it in, and I think the days are numbered for the internet as we have known it – particularly social media. I hope scientists will step up and be part of the conversation as that regulation is debated.

What is next for you?

I’m working really hard to move forward with efforts looking at standards and ethics in journals, and I’m hoping to get more scientists involved in the discussion around internet regulation.

I will be spending the summer (or their winter) in Australia at the University of Sydney. As part of their new Resurgent Racism project, the university is bringing in scholars from all over the world to try and tackle the problem of modern racism in all its forms. Sounds like a worthy but daunting challenge, we wish you all the best with it.

Further reading

- Angela Saini: https://www.angelasaini.co.uk/aboutme [Accessed 10 February 2020]