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A new era of activist science

Andrew Simms, SGR, looks at whether scientists can be activists too, and finds that far from being anything new, many of history's household-name scientists have for generations been getting involved in the moral campaigns of their day.

Should scientists be activists? Many appeal to notions of scientific objectivity to argue against engaging in the cut and thrust of campaigning. With the stakes on the climate and ecological emergency so high and growing, calls to join acts of civil disobedience are increasing too. What is the right thing to do?

Firstly it's not as if activism is new to science. Quite the contrary. Looked at in historical perspective, the relative contemporary academic timidity about engaging publicly in policy controversies looks like a more modern phenomenon. This could be the result of multiple factors including professional, competitive dynamics within universities, commercialisation and academic specialisation. But a quick glance at the sheer range, over time and issues, of the scientist activists in our feature shows that activism has been a well established norm. Today it might be considered more important than ever.

Charles Darwin was an active campaigner against animal experiments, helping to draft laws to control it. Albert Einstein was a committed anti-racism activist, as well as a voice against nuclear proliferation. Leó Szilárd was a Hungarian American physicist who sparked the Manhattan Project but then lobbied President Truman against dropping the bomb. Biologist Rachel Carson was famously outspoken on the environmental harm caused by modern farming methods, while Donella Meadows was a scientist who, as the lead author of *Limits to Growth*, called into question the entire direction of mainstream economics. American chemist Cynthia Chapple has challenged inequality and exclusion within science itself, while cognitive psychologist, Alison Green, is an example of a scientist organising on the frontline of contemporary climate protests.

Yet, in spite of this unbroken thread of activism, a collective frown still tends to wrinkle across the face of the scientific establishment when scientists do get involved in advocacy.

And activism can, of course, swing both ways – humanely towards progress or towards human oppression and destruction. Eugenists and those seeking more efficient forms of killing have pushed their cases just as those seeking peace and to conquer epidemic diseases.

But the era of the climate emergency and the current mass extinction event is a problem of a different order. It seems to be reshaping general attitudes within science about whether, and the degree to which, scientists use their agency as professionals and citizens to bring about change.

In the last couple of years the number of initiatives that see scientists as active catalysts appears to have grown.

There are long standing groups such as the [Union of Concerned Scientists](#) based in the United States, which grew out of student and staff activism and has been campaigning for over 50 years. Scientists for Global Responsibility (SGR) itself formed more recently in 1992, the year of the UN Earth Summit in Brazil, but was made up of other pre-existing organisations including Scientists Against Nuclear Arms, Electronics and Computing for Peace and Psychologists for Peace. It also drew membership from the British Society for Social Responsibility in Science which disbanded around the same time.

But now there are groups like [Scientists Warning](#) set up in California in 2020, [Scientists for Future](#) and [Scientists for Extinction Rebellion](#) each sat in slightly different positions



» on the spectrum of activism. Many other such groups are emerging. It is something that reflects SGR's own research on attitudes to change within science – both at the personal level and in terms of how scientists are increasingly prepared to challenge institutional inertia. In our report [Scientists Behaving Responsibly](#) we found an 'awareness – action' gap with large numbers saying they were set to take more steps to align their lives with climate goals and challenge professional bodies. In a poll 71% thought their field of work's response to the climate emergency was either unsatisfactory, or highly unsatisfactory. More than one in three already rejected flying, with that number pledged to increase to nearly half, 48%. Over one in three did not own a car and rarely used one, and numbers planning to take 'very serious' steps to reduce the impact of their car use set to rise dramatically. A huge 72% said they were adopting largely plant-based diets, and 76% were turning their backs on new consumer goods – choosing less, second hand and long-term repair options instead.

SGR launched its *Science Oath for the Climate* in which scientists commit to making changes in their own lives and work for wider system change, encouraging others to follow suit. The Oath now has over 400 signatories committing to make changes happen. The calling is growing for people working in science and

technology to act on the insights that their specialist knowledge and expertise gives them. Everyone has agency, as individuals and as members of institutions and professional representative bodies.

Sometimes we fail to appreciate the impact that intervening and making a stand – which might feel small and ineffective to ourselves – can have on others. Institutions are notorious for their inertia. Often pushing them to act does them a favour – even if they don't realise it at the time – as it helps prevent them from ossifying. Other people often just need the sight of someone else taking action to validate them getting involved and making changes too. The sheer scale and range of the climate and ecological emergency means that we all need to be activists now. The good news is that today's scientists will be following in the footsteps of bold and brave forebears on a well-established path where they've shown that it's okay to combine science and progressive activism.

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References for this article are provided in the online version – see: <https://www.sgr.org.uk/publications/responsible-science-no-4>

Scientist activists

Far from being exceptions, leading scientists across a huge range of history and different disciplines have combined often world-changing research with high profile activism, reports **Andrew Simms**.



Albert Einstein
1879–1955

The peace and anti-racism activist

Ask a member of the general public to picture a scientist and it's likely they'll conjure the iconic photograph of Albert Einstein with his shock of white hair (possibly the one taken of him sticking out his tongue on his 72nd birthday in 1951).

And, if Einstein is the archetype modern scientist it says something about the wider role of scientists, because as well as being a superlative theoretical physicist, he was also a prominent social activist. An outspoken opponent of militarism who voluntarily chose to become stateless rather than serve in the army, he became a leading voice against nuclear weapons.

But, more than that, Einstein was also a long-term and active campaigner for civil rights and against racism who worked with other activists like the singer Paul Robeson, and lobbied the US President directly over institutional prejudice shown to black Americans. Progressive activism seems then to be synonymous with modern science.



Leó Szilárd
1898–1964

The anti-nuclear nuclear physicist

Leó Szilárd, the Hungarian American physicist, had as much claim as anyone for laying the foundations of the nuclear age. He left Berlin in 1933 to escape the rise of the Nazis, working in England and the US. He contributed to the first experiment that created a sustained nuclear chain reaction,

and it was Szilárd who tipped off Einstein about its potential. He helped spark the Manhattan Project that led to the atomic bomb but as soon as Germany surrendered in the Second World War he began agitating against its use.

Szilárd instigated a petition in the US calling on President Truman to not allow the bomb to be dropped on Hiroshima. As early as spring 1945 he encouraged a group of scientists to produce the Franck Report which warned of the dangers of a nuclear arms race. After the war he campaigned against the military being given control of nuclear power generation.



Rachel Carson 1907–1964

The biologist who called out the chemical industry

Rachel Carson was an American biologist most famous for revealing the ecological impacts of the organochlorine pesticide DDT. She taught at the University of Maryland

and Johns Hopkins University, and conducted postgraduate research at the Marine Biological Laboratory in Woods Hole, Massachusetts. Then she took a job as an aquatic biologist in the US Bureau of Fisheries. Relatively late in her life she published *Silent Spring*, an exposé of the impact of chemically intensive agriculture and a lament for the nature lost as a result. Her work caused a sensation and also triggered a ferocious backlash from the chemical industries who attacked her in public. She was vilified for being 'emotional', wrong and called a communist. But Carson stood by her warnings and was proved right by history.



Donella Meadows 1941–2001

The scientist who trod on the toes of economic growth

Donella Meadows was a scientist who addressed the problem of the biophysical limits to economic systems. She was the lead author of the era-defining book, *The*

Limits to Growth, published in 1972 by a group of scientists from the Massachusetts Institute of Technology and The Club of Rome. Although criticised at the time, and relying on computer modelling which by today's standards was crude, its projections for the potentially devastating impact from continued economic growth on planetary, ecological life support systems have stood the test of time. Meadows was a systems thinker who believed that a "small shift in one thing can produce big changes in everything", and she developed the 'twelve leverage points to intervene in a system', published in 1997, to enable better decision making to live within the biosphere's limits.



Charles Darwin 1809–1882

The naturalist who defied habitual animal cruelty in science and changed the law

We know Charles Darwin as the person synonymous with evolutionary theory and as someone who was seen as a profound threat to established religion in British

Victorian society. But perhaps it shouldn't be a surprise that for someone so immersed in the mysteries of life Darwin also cared deeply about it. He was horrified by the callous treatment of animals by some of his equally curious, but less caring scientific colleagues, and the experience turned him into a campaigner against vivisection. Darwin was a local magistrate and used his position to punish farmers who mistreated animals. As a scientist he condemned vivisection for "mere damnable and detestable curiosity," commenting that, "It is a subject which makes me sick with horror." Darwin drafted a piece of prospective legislation to regulate vivisection which became known as the Playfair Bill, and lobbied hard for it. In 1876 the subsequent Cruelty to Animals Act was passed into law.



Cynthia Chapple

The American chemist tackling inequality to create more access for young black women in STEM

When Cynthia Chapple was shocked to find herself being used for 'photoshop diversity' at the university where she worked as a research chemist, she determined to do something

about it. Through an inspirational teacher, extracurricular clubs and summer science camps she had fallen in love with the subject, but found herself the only black girl in the clubs. Then after progressing through university she found herself being used to demonstrate diversity even in programmes that she had nothing to do with. In the US black people made up just 9% of all STEM related jobs. So, to begin to change things, Chapple set up 'Black girls do STEM', which developed into an after school community in St Louis, Missouri. In 2020 more than 160 girls stated an interest to take part.



Alison Green, Scientists Warning

The cognitive psychologist campaigning to change how people think and behave on the climate emergency

Alison Green is a cognitive psychologist and former university Pro-Vice-Chancellor whose research has focused on skill acquisition. As

Executive Director of the Scientists Warning Foundation, she compliments her interest in the psychology of climate denial with a practical campaigning approach to helping people escape denial and take action. Green was inspired by movements like Scientists Warning, Extinction Rebellion and Fridays for Future to such a degree that she chose to give up her academic career and instead focus her efforts on addressing the climate emergency to help protect life on Earth. She co-edited the Extinction Rebellion book, *This is not a Drill*, and at a time when many other scientists fight shy of campaigning through fear of reputational damage, can be found speaking out from the street to the conference hall on the need for rapid change.



Martin Ryle 1918–1984

The Astronomer Royal who grew dismayed at the inhuman applications of science and became a campaigner against nuclear weapons and nuclear power and for humanitarian action

Martin Ryle, who was Astronomer Royal from 1972–1982, is said to have hated war but detested injustice and Fascism more. For that reason he enthusiastically threw himself into the Second World War effort with the Telecommunications Research Establishment (TRE). Afterwards, to distance himself from militarism he turned to astronomy. From his new subject area he kept sight of the military co-option of science and protested against above-atmosphere 'rainbow bomb' nuclear explosions in the early 1960s and in the 1970s started a wind energy research group. His activism grew with age and in 1976 he wrote a classic, ranging denunciation of nuclear power in *The Times* newspaper. Ryle lamented that, "It is scandalous that a third of the world's population does not have safe drinking water... these are problems which are soluble, but we don't solve them." Towards the end of his life he explained his motivation in a letter to friends who had apparently questioned his activism, "I believe one must do what one can with the imperfect person one is, in the time one has."

Photos: Rachel Carson © US Fish and Wildlife Service; Cynthia Chapple © bgdstem.com; Albert Einstein © [Huanjo](https://www.flickr.com/photos/huanjo/) via Flickr; Alison Green © scientistswarning.org; Donella Meadows © donnellameadows.org.

Faces of SGR's Science Oath for the Climate – will you join them?

The oath for increasing urgent action in science and technology now has over 400 signatories. They're committed to climate activism and many are promoting the oath for others to sign and act on



Professor Phoebe Barnard
University of Washington

"Do you know why I signed the Science Oath? It's because I want to live in a civilisation that makes its decisions based on evidence and logic and love and caring and the future rather than on self-interest and disinformation and superstition and hatred."



Dr Keith Baker
Glasgow Caledonian University

"I'm a signatory of the Science Oath because I firmly believe that scientists, researchers and engineers need to do a lot more than just talk the talk, we need to walk the walk and we are not seeing the political leadership and the organisational institutional leadership we need to combat climate change in the scarily little amount of time we have left... Signing this oath and adhering to the principles of it are one of the many, many things that we can and should be doing."



Professor Jonathan Bamber
University of Bristol

"We don't have the luxury of waiting any longer to make the deep changes required to avoid climate breakdown. Policymakers, governments, industry and of course the scientific community as well have to act now to make the changes needed to protect future generations from ever deepening catastrophe and climate breakdown, increasing weather extremes, threats to livelihoods and threats to lives themselves.... That's why I, along with many colleagues, signed the Science Oath for Climate."



Professor Olaf Eisen
Alfred Wegener Institute &
University of Bremen

"Because we did not act in the last decades, climate change has become the climate crisis. This is why I signed the Science Oath for the Climate, to make people aware of what our lifestyle is causing, to honestly explain what consequences it already has for the planet and for us. We are destroying the ecosystems on which we depend for our survival. Time is running out for humanity to put on the brakes to stop the warming of the climate crisis, to limit the temperature increase to the two degrees range which would still provide us with the stable environment on which we depend. Beyond that we would lose control and also our ability to adapt as a society. Climate change is real. It's us. The experts agree it's bad. But there is still hope – let's act together."



Dr Phil Webber
Scientists for Global Responsibility

"I signed the #ScienceOath after working for over 20 years on reducing carbon emissions via insulation and renewables and seeing weak government policy failing to reduce emissions sufficiently. We have less than 5 years to invest in a safer world. Fossil fuel cuts are vital now."



Dr Amelie Kirchgaessner
British Antarctic Survey

"As a climate scientist I have committed to explain what the scientific evidence tells us about how serious climate change and global warming are."

Work in climate research and science?

Add your name at the SGR website and share it with the hashtag #ScienceOath

<https://www.sgr.org.uk/projects/science-oath-climate-text-and-signing>