

THIS WEEK

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Beware the rise of the radical right

Academic freedom is on the hit list when politicians of the extreme right gain office — as they have done in some European countries.

Hidden inside a 1970s office block close to London's Waterloo station is a tiny organization that has helped tens of thousands of academics find sanctuary from conflict. Co-founded 85 years ago by the economist William Beveridge and physicist Ernest Rutherford, the organization, now called the Council for At-Risk Academics (CARA), enabled many notable twentieth-century scientists — including biochemist Hans Krebs and philosopher Karl Popper — escape the Nazis and settle at British universities. In recent years it has reached out to the Middle East and receives the largest volume of applications from Yemen and Iraq.

CARA and its counterparts in other countries exist because governments in the host nations value three of the pillars on which democracy rests: the rule of law, a free press and, as we explore in a Comment article on page 621, freedom of academic enquiry. If the British government were to decide not to support even one of these, CARA would struggle to carry on.

Such an alarming scenario is not purely hypothetical. For at least the past two decades, citizens of countries in the European Union have increasingly been voting for parties of the extreme right (also known as the populist right or radical right). From almost no representation in the 1990s, these parties are in governing coalitions in 10 out of the EU's 28 member states, including in Austria, Hungary, Italy and Poland. Next May sees elections to the European Parliament in which right-wing parties are expected to increase their combined tally of 78 seats in the 751 seat chamber.

When parties of either the extreme right or extreme left take power, any one of democracy's foundational pillars can be knocked away.

Journalists and their families are intimidated. Judges are demonized and replaced with allies. People from minority groups are singled out for their alleged disloyalty. And action is taken against academics: universities are brought under direct state control and staff are subjected to loyalty tests.

It's a classic playbook to quash dissent. Take Poland for example, where the state has moved to exert control over the media and judiciary. Academic freedom is under threat too. A barometer for the risk it could face will be how much protest the Polish government allows, if any, over its pro-coal stance — which climate scientists have warned against — during the annual United Nations climate talks to be held in Poland next month.

Although there has been much media attention on the phenomenon of the populist right, the implications for academic freedom have gone largely unreported. Even where there has been widespread coverage — such as the case of Hungary's Central European University which was forced to enrol new students in Vienna rather than Budapest — EU institutions such as the European Council and the European Parliament have been largely powerless to take action.

Europe's heads of government are biting their lips, and their reasons for doing so are understandable, even if European agreements or conventions are being violated. There is, of course, the principle of

non-interference in the affairs of a sovereign state. But, in addition, the EU works through the collective solidarity of its member states. This is what has enabled the organization to enact progressive policies in climate change, anti-discrimination legislation and employee rights.

But collective progressivism breaks down when one-third of EU governments include political parties with scant commitment to protecting democratic institutions. Now that EU governments include

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parties who do not believe in the rights of people from minority groups, the consensus on climate change, or, indeed, academic freedom, it will become more difficult for the EU as a whole to either advance, advocate or protect policies in these fields.

“What's wrong with the world is not nationalism itself,” noted Michael Ignatieff, the embattled rector of the Central European University. What's wrong, he added, “is the kind of nation, the kind of home that nationalists want to create and the means they use to seek their ends.”

Ignatieff wrote these words more than 20 years ago in *Blood and Belonging* (BBC Books, 1993), at the end of a series of journeys into some of Europe's conflict zones. But he remains optimistic about the continent's future. “I don't want to predict doom and gloom,” he told *Nature*. “Regimes come and go, but universities remain.”

Academics everywhere will hope he's right. They, and us, can help by speaking out against injustice and specific cases where academic freedom is threatened — by any regime. ■

Breeze block

Wind farms must be built responsibly so they don't create an inefficient wake for neighbours.

Like many words in the English language, ‘overbearing’ has a nautical connection. It describes a manoeuvre in which one sailing ship steers directly downwind towards another, effectively snatching away the overborne vessel's wind to leave it powerless.

Wind turbines can overbear each other, too. As developers seek to build ever more of them — globally, installed onshore wind capacity rose to almost 500 gigawatts last year, up from just 92 GW in 2007 — some of the best blustery locations are getting crowded. That could be a problem. To work best, wind turbines need to capture a clear and uninterrupted stream of moving air. Anything that gets in the way — from mountains and buildings to a rival wind farm — reduces wind speed and the electricity generated. Such obstacles also break up the

air flow and the resulting turbulence increases noise, as well as wear and tear on the turbine blades.

A study published in *Nature Energy* this week shows just how overbearing this effect can be (J. K. Lundquist *et al.* *Nature Energy*, <https://doi.org/10.1038/s41560-018-0281-2>; 2018). It analysed the change in electricity production at a wind farm in West Texas when another farm was built a few hundred metres upwind and switched on 18 months after the first farm opened. The researchers estimate that the downwind farm may have lost 5% of its potential on average, and as much as US\$2 million annually in electricity production. Texas is unusual: it has the largest number of wind turbines in the United States, with more than 12,000 devices spread across 131 separate farms. Inevitably, the separate projects are clustering at the best sites, which have reliable wind and access to transmission lines. In the study, some of the turbines in the upwind farm stand just 300 metres from some of the downwind turbines.

But the study authors say the impact could stretch much further. Under the right atmospheric conditions, the decreases in downwind wind speeds can extend for 50 kilometres or more. Almost 90% of US wind farms have a neighbouring project within 40 km, and so could be affected. (Of course, not all of them would be affected all the time, because the wind changes direction. The Texas study looked only at the impact under the prevailing southwesterlies.) There is also inevitably internal disruption within a single wind project, with the upwind turbines creating a wake that reduces the output of those behind.

One solution to wind farms treading on each other's toes is to leave the land behind and head to the vast spaces of the oceans. But offshore wind farms — typically much more expensive to build and run — also tend to compete for the best sites. In 2014, the Danish firm DONG Energy Wind Power (now Ørsted, based in Skærbæk) published data to show how the performance of its long-standing project at Nysted, close to the island of Lolland in the Baltic Sea, was being undermined by a another company's wind farm constructed just 3 km

away (N. G. Nygaard *J. Phys. Conf. Ser.* **524**, 012162; 2014).

What can be done? Technical fixes to the design or layout of projects are difficult, especially as wind turbines grow larger and more powerful. Some engineers have proposed offshore turbines that float and can shift position to reduce wake as the wind moves, but that's clearly impossible on land. Could rules and restrictions work? A legal analysis by the study authors found no relevant legislation in place

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in the United States. As a comparison, solar-power efficiency in California is protected by regulations to limit the amount of shadow from neighbouring properties that can fall on panels during peak operating hours.

Where they exist, restrictions on the construction of wind turbines often focus on more immediate risks. In a 2008 dispute between rival developers who wanted to build wind farms on adjoining properties in North Dakota, officials ruled only that each turbine must be placed further than its own height from the boundary, so that if it fell it would not land on the other side. Wind shadow wasn't considered.

It's crucial in a warming world to support efforts to boost wind power, and therefore important to install wind farms responsibly to ensure that we harness as much energy as possible, even if the facilities are close together. That means it's important to craft regulations to support such development.

One country has long taken an enlightened view, and could offer a model to follow. The Netherlands is famous for its windmills, many of which still function, thanks to a law that guarantees each mill can continue to fill its sails with the necessary wind (called its *molenbiotoop*, or windmill biotope) by restricting development within 375 m. The law has led to some creative solutions: in 2010, a flour mill in Spijkenisse from the 1860s was cut from the ground, raised and placed on a 7 m-high concrete collar to allow houses to be built nearby. Where there's a mill, there's a way. ■

Ban bullying

All institutions need a procedure for dealing with bullies.

Science can be difficult enough even if you work in a great laboratory with supportive colleagues. So the added pressure of a boss or co-worker who regularly abuses, trivializes, hassles, belittles and unfairly criticizes is not just a problem for the individual concerned. It's bad for research.

Such workplace bullying thrives on silence. But, as occurred with sexual harassment, there is growing noise about bullying in science. Already this year, allegations of bullying have rocked the world of astrophysics, closely followed by those of cancer genetics, neuroscience and vertebrate palaeontology.

Much of this additional scrutiny is down to the willingness of scientists to speak out. Now is the time for more institutions to follow their lead and step up to take decisive action. Does your institution have an anti-bullying policy? If you work in Britain, the answer is probably yes; but if you work in countries such as the United States, the answer might be no. As a News Feature on bullying in science highlights this week (page 616), few US institutions have policies that explicitly prohibit their staff from bullying others. Such behaviour might be covered by anti-harassment policies, but in those cases, targeted staff members can seek redress from their employer only if they fall into a group protected by employment law and can show that they have been targeted because of their sex, race, religion or age. The motivation of a bully should not be the issue here. Bullying is unacceptable, and more employers must make that clear.

What to do? If you feel that you are being singled out for unfair treatment by your boss or colleague, you have several options, and one of them is to talk to others. You will need support from your friends and family, and no one can help you if they don't know it's happening. By sharing your story with trusted peers, you might discover that other people you work with are going through the same thing.

Seek advice about what you can do to address the problem. Speak to someone in your institution's human-resources department or a manager about how to solve the problem informally. If you belong to a union, you can ask it for advice. It can be helpful to keep a diary of the problematic behaviour. If you feel confident enough and it is safe to do so, think about speaking to the bully. Calmly try to tell them that you find their behaviour unacceptable and ask them to stop.

Many who have been through the process can testify to the professional upheaval and emotional turmoil that comes with reporting a bully. It is easy for those who are not in sitting in the eye of the storm to extol the virtues of flagging up bullying for the greater good of science and society. There are no easy answers, and some cases might boil down to one person's word against another's.

This is why institutions need to step up to the mark. Reports of bullying should be fairly and thoroughly investigated, with attention to due process. Anti-bullying policies or codes of conduct for staff should be easily accessible, give clear guidance on what behaviours are and are not appropriate in the workplace, and outline the measures that would be taken if allegations are reported.

Crucially, institutions need to follow these policies to the letter, regardless of whether the alleged perpetrator is the director of the institute or a first-year PhD student, to protect all those involved — including the accused, who might be the victim of malicious allegations. Incomplete or unfair investigations can undermine the credibility of an organization, harm careers and signal to bullies that their behaviour will be tolerated — in 2018 that is unacceptable. ■