

# THIS WEEK

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## Allez votez!

*Researchers in France overwhelmingly oppose the far right and can stamp out its rise by turning out to register their disapproval.*

As France prepares to vote on Sunday in the first of two rounds to elect a president for the next five years, it's worth recalling the shock waves that reverberated across the country on 21 April 2002, when Jean-Marie Le Pen, the leader of the National Front, narrowly made it into the second-round run-off. In response, an estimated 2 million people took to the streets in protest. Jacques Chirac, the centre-right candidate, went on to be elected with 82% of the vote.

Fast-forward 15 years, and Marine Le Pen, who took the helm of the National Front in 2011, is omnipresent in the media. Most commentators have taken it as a given that she will easily qualify for the second round, and there is little of the shock and disbelief of 2002.

Researchers in France, as we report this week, are solidly ranged against Le Pen (see page 277). Most, after all, are middle-class intellectuals and staunchly pro-European. Europe seems to figure most prominently among researchers' concerns in the highly unlikely event that Le Pen should be elected.

Le Pen has promised to renegotiate European Union membership and has promised a referendum on France's place in Europe and on leaving the euro. But she has been vague on details, and for good reason. Opposition to Brussels and the EU make for good election-campaign rhetoric. But even if soft Euro-scepticism is widespread in France, more than two-thirds of French people, including many among Le Pen's electorate, have no appetite for leaving.

Another paradox is that the National Front's intolerance is similarly out of touch with the bulk of French society. The annual report published last month by the French National Consultative Commission on Human Rights, an independent state watchdog, found that tolerance continues to increase in French society, with a broad rejection of racism and xenophobia, and increased acceptance of minorities.

Conducted since 1990, the commission's surveys have shown that tolerance has risen with each new generation and with the progressive increase in levels of advanced education in the population. Counter-intuitively perhaps, this year's report also said that events such as the terrorist attacks in France and the refugee crisis had not dented the large increase in tolerance over the past few years.

But the commission rightly cautioned that everyone has tolerance and intolerance within them. Indeed, social science tells us that people might not care much about, say, immigration day-to-day, but with attention they can easily come to believe that it is a major issue for the country.

Many social and political scientists are taking an interest in populism, the idea that has helped to normalize extremist parties such as the National Front and banalize their theses. It comes from perhaps an unlikely quarter — once purely an academic concept, populism has been uncontrollably released into the wild, with disastrous results.

Yet populism alone — defined roughly as an ideology that views society as being made up of two antagonistic groups, with a homogeneous, pure 'people' struggling against a corrupt elite — has

little utility or meaning. The left-wing Spanish party Podemos is populist but pro-European, progressive and inclusive, and it staunchly defends minorities, including refugees. It has almost nothing in common with the National Front, which is also 'populist'.

In his bid to stay in the presidential race, the centre-right candidate François Fillon has increasingly shifted to the far right and has co-opted many of Le Pen's themes. Social scientists rightly see this co-opting of far-right policies by mainstream parties as being as dangerous to liberal democracy as populist far-right parties themselves — or perhaps even more so in the long run.

When the time to vote comes around, the French would do well to bear in mind that Jean-Marie Le Pen's success in the first round in 2002 did not result from a surge in support for his ideas. Le Pen's share of the registered vote was no different from the low levels he had obtained in other presidential elections. His success was down to record levels of abstention, and a dispersion in the centre-left vote towards smaller parties. One of the few routes to victory by Marine Le Pen in a second-round contest would be a high turnout of her voters and a low turnout of her opponent's. So the message to scientists and others in France is clear — *allez votez!* ■

**“Populism has been uncontrollably released into the wild, with disastrous results.”**

## Help yourselves

*Cutting funding for research in foreign aid would make the United States less competitive.*

With severe cuts proposed for US agencies that handle environmental and health research, it might seem that scientists can't prioritize the possible dismantling of US foreign-aid programmes. But they should. President Trump's proposed 37% budget cut to the state department and the US Agency for International Development (USAID), which manages foreign assistance, would wreck a burgeoning and successful example of evidence-based policymaking.

US foreign aid has transformed significantly, so that it now involves fewer handouts and savvier science. In 2009, former president Barack Obama heralded a greater role for research in foreign policy when he used a speech in Cairo to argue that science and innovation provide the means to tackle climate change, hunger and epidemics. These problems foster poverty, which can in turn breed political instability, conflict and disease — all of which have ripple effects that don't respect borders.

Indeed, international aid has always been self-serving. Look no further than arguments from high-ranking officials against Trump's proposed changes. Although the cuts to USAID and the state department are intended to offset a US\$54-billion increase in defence spending, 121 retired generals and admirals sent a letter to Congress on 27 February, warning that a reduction in foreign assistance endangers national security. They wrote: "Many of the crises our nation faces do not have military solutions alone."

Many crises are best countered by viable science, technology and implementation strategies. And some USAID funds go into research that evaluates whether these interventions could be conducted more efficiently or with fewer unintended consequences. Take, for instance, the agency's President's Malaria Initiative, started by George W. Bush in 2005. The initiative supports parasitology laboratories in Mali that monitor whether subsidized malaria drugs currently given to healthy children are on track to avert an estimated 80,000 deaths per year in West Africa, as projected by clinical trials — and how rapidly those treatments are leading malaria parasites to become resistant to the drugs.

One useful by-product is that, with funding, researchers and labs in poor countries become better equipped to monitor and manage diseases before they escalate to an unstoppable point, as the Ebola outbreak did in West Africa — costing US taxpayers \$2.6 billion.

As political positions harden, it's worth pointing out that science at USAID is the applied variety that conservatives tend to favour. And that transparent analysis of methods and results allows inefficient programmes to be killed or adapted over time. Budget cuts that threaten this key part of aid will guarantee that wasteful programmes continue for too long.

In this sphere, social and economic impacts are as important as technical and scientific success. This is demonstrated by projects funded by USAID's Feed the Future Innovation Labs, which sponsor partnerships between agricultural researchers at US universities and those in low- and middle-income countries. One team, led by plant

pathologist Jagger Harvey at Kansas State University in Manhattan, is developing portable grain dryers that preserve harvested crops and keep them free from mould. A sign of the group's success is that small-scale farmers in Bangladesh are buying the technology. That renders it less likely to go the way of so many aid projects — ditched by the side of the road because they are impractical or unwanted.

Sustainability is also a key value of the agency's Global Development Lab, which launched in 2014 as a hub for US scientists with ideas on how to confront specific pressing challenges, such as emerging pandemics and a growing need for fresh water. One of the lab's grant winners, mechanical engineer Amos Winter of the Massachusetts Institute of Technology in Cambridge, installed a solar-powered desalination unit in southern India in January. From the perspective of both USAID and Tata Projects, an Indian infrastructure company that has invested in the technology, the system is attractive because it's engineered to hit a price point. Specifically, Indian communities of roughly 3,000 people will be able use around 10,000 litres of fresh water per day, but they will not pay more than \$11,000 for the system. Until now, most off-the-grid communities have found solar-powered desalination units too expensive. As a result, they drink brackish water and suffer the health consequences.

Technologies such as Winter's system — engineered to be inexpensive and off-grid as a matter of necessity — may one day end up in rich countries, as fresh water and other resources become increasingly scarce around the world. In other words, the United States also remains competitive by having a hand in the development of innovations abroad.

On 27 January, the US National Academies of Sciences, Engineering, and Medicine published a report recommending more science at USAID. As co-author Michael Clegg says: "We enhance people's welfare around the world and we gain." ■

the MIT Sloan School of Management in Cambridge, Massachusetts, describe how they recorded the daily exercise patterns, geographical locations, and social-network ties of more than 1 million people, who between them ran more than 350 million kilometres over 5 years (S. Aral and C. Nicolaides *Nature Commun.* **8**, 14753; 2017).

Exercise, the results showed, is socially contagious. And the contagion breaks down along distinct lines. Whereas men are affected by the running patterns of both their male and female friends, women are influenced only by their female friends. And despite the aspirational spirit of sports-company adverts and marketing, and of elite athletes and champions, most runners in this study were motivated by a less noble ambition: to keep ahead of those behind them. This is a live debate in exercise psychology: whether upward comparisons to better-performing rivals urge us to improve, or whether downward comparisons compel us to work to protect our superiority over those lagging behind.

The study offers some of the first hard evidence that health-related habits can spread — and so perhaps could be deliberately seeded and encouraged — by social influence and peer pressure. Previous research has sought such a contagious effect in factors such as obesity and smoking, but the results have been inconclusive.

The new study is a further example of the power of social data collected and made available routinely on a very large scale. Runners cannot lie about their times and distances as they might be tempted to do in self-reported surveys. (Although the competitive nature of running does drive some to cheat and ride a bike.)

Sillitoe's lonely narrator liked to claim that running offered freedom. "I've got thoughts and secrets and bloody life inside me that he doesn't know is there, and he'll never know what's there." Perhaps not yet — but science is getting there fast. ■

# Keeping ahead

*Uploaded timings from wearable devices motivate runners to outrun their friends.*

In his 1959 short story *The Loneliness of the Long Distance Runner*, the writer Alan Sillitoe used solitary exercise as both a metaphor for life's journey and a literary device to explore the thoughts and feelings of his young and troubled protagonist. "The long-distance run of an early morning makes me think that every run like this is a life — a little life, I know — but a life as full of misery and happiness and things happening as you can ever get really around yourself," he wrote. And the isolation was a necessary part of the experience. "You should think about nobody and go your own way."

Nearly 60 years later, loneliness is out of fashion. The social network of wearable technology and data sharing now includes millions of people who use digital apps to measure, record and compare how often they run, how far and how fast. Competitive fitness is no longer a phrase used and understood only by evolutionary biologists. And if going your own way has become more difficult in this new runners' world, to think about nobody else is a rare thing indeed.

Scientists this week show that such exchange of information between runners has a real and measurable impact. People run more when their friends do. And when they see their friends run faster and further, they push themselves to do so too.

In the study, published in *Nature Communications*, researchers from