

# THIS WEEK

## EDITORIALS

**TRANSPLANTS** Presumed consent for organs could show the way **p.6**

**WORLD VIEW** Don't lose big-data systems for biology in the cloud **p.7**



**ORIGINS** Fossil shows how modern starfish can spin a tale **p.9**

## More than hot air

*US President Barack Obama gave a fine speech on global warming, but now he must deliver on regulations for coal power and greater fuel economy.*

Before a major speech on the subject last week, it had been two years since US President Barack Obama last waded into the complex arena of energy and climate change. His emphasis then was on an 'all-of-the-above' approach that put oil and natural gas on an even keel with alternative energy sources.

But on 25 June, citing "the overwhelming judgement of science", as well as the country's founding fathers, who charged political leaders "to make decisions with an eye on a longer horizon than the arc of our own political careers", Obama broke a long silence on global warming.

The centrepiece of the president's speech was a pledge to regulate carbon emissions from power plants new and old. The power sector produces some 40% of total US emissions, and administration officials have long said that they would fill the regulatory void if Congress failed to act. Although Obama did not make any specific promises last week, he did lay out a schedule and put the full weight of the White House behind these efforts, which is what they need and deserve.

These commitments are overdue. The US Environmental Protection Agency (EPA) has already proposed a regulation that would essentially ban the construction of new power plants unless they are equipped to capture and sequester carbon. That rule has languished for over a year, and under the new schedule will not be finished for almost another 12 months. Many of Obama's most ardent supporters, as well as his critics, had long assumed that the EPA was already working on regulations for existing power plants. Apparently it wasn't — at least, not in any serious way. Obama has now ordered the agency to issue a regulatory proposal next June and to finalize the rules a year after that, just in time for a major United Nations climate summit in Paris.

Obama's 'climate action plan' contained a variety of other initiatives, including calls for a new round of appliance standards, fuel-economy regulations on heavy-duty vehicles and various efforts intended to prepare the country for a warmer climate. Much of the plan may seem old hat, but that is to the president's credit. Over the years, his administration has cobbled together a broad set of policies that — along with a shift from coal to natural gas and renewables for electricity generation, as well as several years of economic woe — have markedly reduced greenhouse-gas emissions, which registered almost 7% below 2005 levels in 2011.

But the United States still has a long way to go if it is to fulfil its international commitment — a 17% reduction by 2020 — and pursue deep emissions reductions as the century wears on. Having secured historic fuel-economy regulations across the vehicle sector, Obama now has the opportunity to lay down an aggressive set of regulations for the power sector. It will be up to the EPA, working with states, businesses and environmentalists, to determine how to structure the regulations. Rather than focusing purely on technological upgrades such as requiring more efficient boilers, the EPA may be able to improve on broader incentives that would require deeper reductions while, for example,

allowing utilities to work with customers to curb electricity demand.

Obama also hinted that he could deny the proposed Keystone pipeline from Alberta to the United States — if the state department's ongoing analysis determines that it would significantly exacerbate greenhouse-gas emissions. In truth, oil from the tar sands is hardly the dirtiest resource from a climate perspective, but it is not the cleanest either. And even a cursory review of the local environmental impacts suggests plenty of reasons to shift investments towards cleaner alternatives.

**"Obama urged politicians to live up to their obligations as caretakers of the future."**

Regulating greenhouse-gas emissions from the power sector is by far the biggest opportunity, but if the administration feels it can justify a symbolic decision against Keystone and still move a workable and effective regulatory agenda forwards, then so be it.

Whatever form the regulations take, and however ingeniously the administration can work around political opposition, the full scale of the climate challenge is more than any president could accomplish independently of Congress. Obama urged politicians and public servants to rise above the political fray and think beyond the next election, to live up to their obligations not just as "custodians of the present, but as caretakers of the future".

Obama is just six months into his second term, but these are the words of a president who no longer needs to worry about re-election. Obama is now thinking about his place in history. Although his broader climate agenda has been stymied in Congress, Obama has laid out a solid path forward. Now he must follow it through. ■

## Russian roulette

*Reforms without consultation will destroy the Russian Academy of Sciences.*

The Russian Academy of Sciences has seen and survived its share of political turmoil in its nearly 300-year history. Yet recent decades have not been kind: the academy has been in a state of decline since the fall of the Soviet Union in 1991.

When funding, generous in Soviet times, declined drastically in the 1990s, too many of the academy's ageing — and increasingly unproductive — members became preoccupied with securing personal privileges. Last year, an internal assessment of the academy's science managed to conclude that each of the academy's 400 institutes performs world-class research; typically, no external scientists were consulted. In fact, by all measures, only a small fraction of academy institutes can be

considered internationally competitive. Many produce only poor science — and outsiders have criticized the organization again and again for refusing to accept the dire reality of its situation.

The problems have not gone unnoticed by the Russian government. Tensions between the science ministry and the academy have risen in recent years, as the government has become increasingly worried about Russian science's lack of competitiveness. The stand-off approached a dramatic climax last week, when a bill was hastily introduced to the Russian parliament that, if approved, would effectively liquidate the academy in its present form. The academy is ill, of that there is no doubt. But the proposed cure would kill it off. Worse, the bill is marked with the worrisome signs of autocracy that characterize Russian President Vladimir Putin's current regime.

The planned coup would merge the Academy of Sciences with Russia's minor medical and agricultural academies, and would provide all members of the united body with equal status as academicians. The present academy would lose the right to manage its property and, more importantly, would cease to operate research institutes of its own. Existing institutes would be evaluated, and those deemed competitive would in future be run by a new government agency on behalf of the academy. Putin hoped to turn the proposal into law without giving the academy time to respond, although the parliament's final vote has now been postponed to October.

The proposal has caused an outcry from Russian scientists. Researchers have laid down flowers near the academy's headquarters on Leninski Prospect in Moscow in a symbolic funeral for the institution, which was founded in 1724 by Russian Emperor Peter the Great.

However, it is not the bill's aim and content that are most troubling, but the hasty and profoundly undemocratic manner in which it was

conceived. Vladimir Fortov, the academy's newly elected president and a reformer who has announced a number of measures to rejuvenate and restructure the organization (see *Nature* **497**, 420–421, 2013) was not consulted. Neither were the institution's scientific workforce and the trade unions.

Some Western-orientated Russian scientists acknowledge that a number of the proposed changes could be beneficial. In effect, the reform would create a flexible learned body similar to scientific academies in the United States and much of Europe, whose main duties are to provide the government with scientific advice on questions of societal relevance. The task of organizing and funding the research itself would be passed on to a new agency — similar to Germany's Max Planck Society — that, if properly run, could provide basic science in Russia with much-needed vision and impetus.

But such sweeping changes require more time and preparation than Putin seems willing to grant. An organization that employs more than 45,000 scientists cannot be successfully transformed overnight. Russian scientists have a right to be heard and consulted, and they should have been. For the sake of Russian science, members of the parliament should refrain from hastily passing an ill-prepared bill; they should wait until at least the basic technicalities of what is indeed a much-needed reform have been thoroughly worked out and made public. The government and the academy should set up an expert committee of respected scientists and give it at least 12 months to plan the transition. If the result is to be a system that rewards excellence and can give solid advice to those in power, then Russia can wait one more year. ■

***"The academy is ill, of that there is no doubt. But the proposed cure would kill it off."***

# Presumed consent

*More must be done to boost tissue donation for transplantation and research.*

Despite decades of scientific progress in the field of organ transplantation, there remains a crippling shortage of suitable tissue from willing donors. Actually, make that donors who have made it clear that they would be willing. Surveys in Wales, for example, have shown that although some two-thirds of people asked say that they would be willing to see their heart, liver, lungs and other tissues reused after their death, only half of those people go as far as registering their consent on the organ-donation register. The resulting shortage, according to Mark Drakeford, the Welsh health minister, means that one person dies in his country almost every week while waiting for a donor.

As *Nature* went to press, the Welsh Assembly was voting on a proposed change in the rules. It would see Wales reverse the donation dynamic — on death, an adult's organs will automatically be considered for transplantation, unless that person previously made it clear this was against their wishes. A new register would record the names of those who do not wish to be classed as donors.

If passed, the 'presumed consent' scheme would come into force in 2015. Although the family of someone who died without registering to opt-out would have no legal right to block use of that person's body parts, in practice officials say they would be given the opportunity to show that their loved one would not have wanted to donate. This 'soft' scheme is similar to that in operation in Spain. Austria takes a stronger line and its 'hard' opt-out means that if someone dies without registering their dissent, then their organs are considered fair game.

The vote comes at a time of increasing scrutiny of the way in which tissue taken during hospital procedures is used in medical and scientific research. Last week, *Nature* told the largely unexplored story

of the WI-38 cell line, derived from a fetus aborted from a woman in Sweden (see *Nature* **498**, 422–426; 2013). And Rebecca Skloot's book *The Immortal Life of Henrietta Lacks* (Crown, 2010), the history of the HeLa cell line and the ethical issues it raises, continues to sell. Consent — in medicine and science — has become a key issue.

It also comes at a time when there remains a critical shortage of some tissues for research — the brains of children for example, which are needed for work on autism and schizophrenia. Advocates and patient groups are already working on ways to confront the biggest obstacle — the emotionally fraught conversation with devastated parents who have lost a child (see *Nature* **478**, 427; 2011). By talking to the parents of children with autism about the benefits of donation, for example, they can increase the chances of gaining consent should the worst happen.

Presumed consent, with the burden placed on people and families to opt-out of tissue donation, seems a step too far at present for material needed for scientific research. But are the issues involved that different from those surrounding transplantation? Both promise better health and new life from the waste of death.

One important motivation when it comes to organ donation is that there is little alternative. If someone with a failing organ today does not find a willing donor, they may not see tomorrow. That may not always be the case. As a News Feature on page 20 investigates, researchers are using tissue-engineering techniques to build artificial hearts in the laboratory. A Letter published online this week describes the use of induced pluripotent stem cells to grow human liver tissue in mice (T. Takebe *et al.* *Nature* <http://dx.doi.org/10.1038/nature12271>; 2013). And, last month, Japan announced plans to relax a ban on experiments that mix human and animal cells, which could be used to generate transplantable human organs in pigs.

For now, such research is of little comfort to those waiting for someone else to die. The planned change in Wales goes some way towards making the bodies of the deceased more widely available. And it shows that, given the chance, the kindness of strangers, as well as their consent, can be presumed. ■

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