

THIS WEEK

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Fantasy politics

A US congressional investigation has distorted the truth about research that uses human fetal tissue — and sets a troubling precedent.

A stunning and potentially influential science-fiction story was published last week. You might have read it. This dystopian tale reimagined the history of vaccine development, and then predicted a bizarre future disconnected from its past. The tale portrayed an altered vision of the scientific enterprise itself: one in which, by applying cognitive dissonance, the basic research that underlies a technological advance can be dismissed even as the advance itself is celebrated.

Like all the best science fiction, the story took the real world and gave it a twist. So, animal models became perfect surrogates for understanding the human body. The only valuable science was judged to be popular and heavily cited science. And researchers had to justify to politicians the value and necessity of their science before being allowed to pick up their pipettes and begin an experiment.

The authors of this fantasy were the Republicans who were part of a US congressional investigation into the use of tissue from aborted human fetuses for research — informally known as the Select Investigative Panel on Infant Lives (see <http://doi.org/bwzq>). And the result would be funny if it weren't so serious.

The stated intent of these elected officials was to investigate statements, made by dozens of universities and other organizations, that work with this controversial material is important to the development of new vaccines and therapies. In doing so, the officials applied their own, distorted, vision of how science works, and then concluded that dozens of scientific societies and other institutions had made false claims in the name of self-interest. (Democrats on the investigation produced a separate report that did not reach the same conclusion.)

Of course, institutions and scientists are not immune to conflicts of interest and acts of self-preservation. But the Republicans' investigative report shows a careless — or perhaps all too careful — disregard for facts and history. Such a report should be an aberration. There are concerns that it will not be.

The way in which the Republican report distorts science will be familiar to veterans of climate-change politics. But it should still alarm researchers to see how this misleading approach has spread, and it is especially worrying given the political changes ahead for the United States.

President-elect Donald Trump could embolden the anti-science lawmakers in Congress to 'investigate' other areas of controversial research. As such, it would not be totally paranoid to worry that the report released last week, the culmination of a year-long, nearly US\$1.6-million investigation, is a taste of things to come.

The use of fetal tissue from abortions is a prime target for politics in the United States, where access to abortion is a perennial political issue. The investigation was launched after a series of undercover videos showed employees of women's abortion clinics and companies that distribute fetal tissue for research discussing the procedures they use for collecting the tissue and the fees they

charge for the service. It gave those opposed to abortion a new way of attacking those who provide such tissue.

In which other directions could this damaging and partisan interference spread? Biologists remember the struggle to access embryonic stem cells during former President George W. Bush's term in office. Fears are mounting that this attack will be renewed.

The Republicans' report on fetal-tissue research harked back to the old arguments about embryonic stem cells — the familiar, evidence-free mantra that convenient alternatives can easily replace a controversial source of material. (Despite the open hostility, there was never a congressional investigation into the use of embryonic stem cells.) The report also went a step further, rewriting the long history of the role of human fetal-tissue research in vaccine and therapy development, and even directly attacking one researcher for his vocal support of the research.

Such an attack has two goals: to discredit one man's testimony before Congress, and to deter others from speaking up. It is important for the scientific community to rally round those who would speak up to defend research. Let us hope that this report is an isolated incident. Even so, researchers should prepare for more of the same. ■

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Natural language

The latest attempt to brand green practices is better than it sounds.

According to book publishers, there has been a surge of interest in writing and reading about nature. Something about the way people live in our modern world, they say, encourages readers to seek reconnection with the great outdoors and its inhabitants. But to use words to convey the beauty and tragedy of the environment beyond direct human experience — and to do it well — is a rare skill indeed.

That perhaps helps to explain the clunky and chewy terminology crudely attached to efforts to preserve and protect the natural world. If a picture truly paints a thousand words, then none of them is likely to be 'ecosystem services'. Equally, 'green-blue infrastructure' and 'natural capital' set few hearts aflutter. So what are we to make of the newcomer to this lexicon of ecology: 'nature-based solutions'?

NBS — as almost no one yet calls it — is a newly coined umbrella term intended to sweep up all of the above phrases, add others such as 'ecological engineering' and 'ecosystem-based mitigation', and dump

them into a policy-relevant pot, where sustainable practices that harness the natural world (wetlands to clean waste water, for example) can be devised, analysed and then pulled out for use by politicians, scholars and researchers. This is probably the first time you've heard of nature-based solutions — unless you work for the International Union for Conservation of Nature, the European Commission or other select groups that have started to use the term in the past few years.

Will it catch on? It's easy to be cynical and scoff at this latest attempt to constrain and brand work already on the margins of scientific and public awareness, but don't let the grisly management speak put you off. 'Nature-based solutions' might sound like it belongs on the side of a gardener's van, but the concept it represents is of vital and urgent significance. As the grand challenges that face society continue to build, so does the need for multidisciplinary, evidence-based strategies to, for example, protect water supplies, address habitat loss and mitigate and adapt to climate change. And if a concept is solid, then the alien

words and terms that represent it have a habit of becoming familiar and bedding into everyday discourse.

Nature-based solutions may sound artificial and unusable at first, but then so, probably, did the now-widespread, accepted and useful 'sustainable development' and even 'biodiversity' when they were first written and spoken aloud — and both terms emerged into policy debate more recently than you might expect.

Still, if NBS seems poorly defined and vague, that is because it currently is — and this is where scientists come in. As specialists in conservation and sustainability point out in the journal *Science of the Total Environment* (C. Nesshöver *et al. Sci. Tot. Environ.* **579**, 1215–1227; 2017), NBS will require the research community, its supporters and funders to answer a series of questions. The answers will entail identifying the specific problems for which a nature-based solution is needed, and monitoring the outcomes. Words, after all, can only take us so far. ■

ANNOUNCEMENT

Five new Nature journals for 2017

Since *Nature Genetics* was launched in 1992, the stable of Nature research and review journals has grown significantly. This year they'll be joined by five more — a launch rate that is unprecedented and unlikely to be repeated. These new online-only subscription journals are responding to positive signals from their target research communities. They also reflect a deliberate diversification of the Nature journals into multidisciplinary research that addresses societal challenges, without losing their commitment to the disciplines of fundamental science.

Two of them, *Nature Astronomy* and *Nature Ecology & Evolution*, exemplify the traditional disciplinary approach. The first issue of *Nature*, in 1869, opened with an introduction from the great evolutionary biologist Thomas Henry Huxley; later in the issue, Norman Lockyer, the founding editor, discussed the total solar eclipse that had been recently visible across the United States.

Nature has published many discoveries since, including the first pulsar and the first extra-solar planet. Responding to the growth of the astronomy literature and the evident appetite for an international journal spanning astronomy, astrophysics and planetary science, *Nature Astronomy* aims to bring research communities together and discuss advances of mutual benefit, including in theory and in instrumentation.

If there is one word that sums up the interests of *Nature Ecology & Evolution*, it is biodiversity. Evolutionary biologists pursue how biodiversity arose and developed, and ecologists monitor how it is maintained and its effects. Much of the research in the journal's first issue focuses on fundamental topics — for example the evolution of early tetrapods and the idiosyncratic genetics of regenerative flatworms. But its scope goes beyond these predominantly academic questions. Global biodiversity is under unprecedented threat, a tragedy with consequences for food, health and climate. So the first issue also contains work on the effect of international trade on biodiversity and on the evolution of antimicrobial resistance.

Research in biomedical engineering involves discovery and invention, and *Nature Biomedical Engineering* aims to serve both these purposes. Clinical advances offer further improvements in methodology and generate hypotheses to be tested in the laboratory. And fundamental advances in biology, medicine, materials science and physicochemical and engineering processes lead to

developments in therapy and technology. Indeed, major inventions in biomedical engineering — such as artificial joints, magnetic resonance imaging, heart pacemakers, heart–lung machines and angioplasties — are built on findings that stem from basic research and have enabled further discoveries. By publishing content that traverses boundaries between fields, *Nature Biomedical Engineering* will help to build bridges between researchers working in the laboratory, in the clinic and in industry.

Human behaviour is relevant to humanity's responses to the great challenges that face it in climate change, sustainability, health, poverty and economic growth, and conflict. Whether in these contexts or in the fundamentals of human psychology, research addressing these topics is the stuff of *Nature Human Behaviour*. The journal offers an outlet for cutting-edge research on any aspect of individual or collective human behaviour and welcomes submissions from a broad range of disciplines across the social and natural sciences — including psychology, economics, political science, sociology, anthropology, geography, epidemiology, behavioural ecology, evolutionary biology, neuroscience, psychiatry, genetics, physics and computer science. It aims to publish research that represents a leap forward in describing, explaining, predicting or changing human behaviour. The journal is committed to promoting robust scientific practices — for example by publishing registered reports (whereby papers are accepted in principle before study data have been collected); high-value replications; and confirmatory studies whose scale and rigour mean that they supersede the existing literature and strengthen confidence in a scientific discovery.

The review journals launched under the Nature name have gained a high reputation, not least for their clarity and illustrations. *Nature Reviews Chemistry* promises to continue in that strong tradition. Chemistry plays an important part in many areas, including some that are close to the topics of the four new research journals already discussed. Cross-pollinating knowledge from different chemical disciplines can help all of them to advance, but doing so requires these fields be made accessible to a broad audience. This is one of the goals of *Nature Reviews Chemistry*. The launch issue includes reviews on earth-abundant catalysts for water-splitting, the use of scanning-probe microscopy for molecular characterization and manipulation, the collective effects of London dispersion forces in sterically crowded molecules and the use of lanthanide catalysis in transformations of carbon oxygenates. The journal will also feature regular columns focusing on chemistry education and how to translate research into business opportunities.

Both in the scope of their content and in their editorial practices, these journals, like their predecessors in the Nature stable, intend to deliver true added value, within their disciplines and beyond. ■