THIS WEEK

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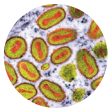

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Worrying changes in Hungary

The European country's autocratic government has made a disturbing grab at the nation's scientific institutions.

Travel writers like to call Hungary a land of contrasts. But the cliché has been true there in recent years, as the ultranationalist government of Viktor Orbán has tightened its grip. Although European Union politicians have watched Hungary's increasingly anti-democratic tendencies with mounting concern, researchers have seen the nation's research base begin to flourish, with new internationally competitive laboratories.

This juxtaposition has been achieved because, until now, Hungary has left science in the hands of its own experts. And for the most part, they have done a splendid job. That situation has now changed. The authoritarian government is snatching away scientific autonomy — and this should provoke alarm.

The storm has been gathering since an April election brought a landslide victory for Orbán's Fidesz party. In its path is the proud Hungarian Academy of Sciences, which has stood independent of politics for more than two decades, since the collapse of communism in the region. The academy has done sterling work, including creating major research grants that allowed many researchers who had been working abroad to return to Hungary and establish independent labs. Yet the government's budget proposal for next year, announced earlier this month, would transfer the majority of the academy's financing into the newly created Ministry for Innovation and Technology.

And last week, Orbán dismissed József Pálinkás from the leadership of the National Research, Development and Innovation Office, a post he has held for three years. Since 2015, Pálinkás, a physicist and former academy president, has created from scratch a broad portfolio of funding programmes ranging from basic science to near-industry research. The scheme was a model for how to build a science base founded on excellence, and it triggered a welcome reversal to Hungary's previous brain drain (see *Nature* **551**, 425–426; 2017).

According to innovation minister László Palkovics, the changes are to unify innovation and science policy, and to eliminate fragmentation of research budgets. On the face of it, that's reasonable. Palkovics promises that the academy money will be filtered back to its various research institutions. And any incoming government in a democratic country, of course, has the right and mandate to replace key members of staff.

Yet many researchers in Hungary tell *Nature* they are worried academy money might be returned with strings attached — maybe instructions that it should be spent to serve the economy more directly, or that historians should glorify their country's past. Trust is at a low ebb. The government's actions in other areas are becoming ever more extreme. On the day of Pálinkás's dismissal, for example, the parliament approved a law that makes helping refugees to apply for asylum in Hungary a crime punishable by up to 90 days' imprisonment. It also approved constitutional changes that require all state institutions to protect Hungarian cultural and Christian values, and that make homelessness illegal.

Orbán has never felt comfortable with what he sees as academia's international and elitist air. A particular bugbear for him has been the Central European University (CEU), which was founded in 1991 by Hungarian-born philanthropist George Soros, and is registered in New York state but located in Budapest. A law rushed through in April last year required international universities to operate as higher-education institutes in their country of origin as well as in Hungary.

That law affected only the CEU, whose agreement to remain in Hungary expires at the end of this year. The change attracted an impressive 70,000 protesters to the streets of Budapest, and the CEU quickly arranged higher-educational activities in the United States to be compliant with the law. But the government has still not signed off on a new agreement for the university to stay in the country, drafted last September. Negotiations are continuing, but the CEU has organized an alternative home for itself in Austria, and a transfer there seems increasingly likely as deadlines for recruiting next year's students approach. That would deprive Hungary of a valuable intellectual hub, and would mark another significant step backwards for the country.

> ***"The authoritarian government is snatching away scientific autonomy."***

The message to Hungary should be clear: ensure that the government's new management and methods continue to uphold the principles of meritocratic funding. And maintain the possibilities of long-term funding for excellent basic research, to help ensure that a strong scientific community can continue to feed the government's laudable innovation ambitions. Meanwhile, the 2019 budget, with its plan to take control of the Hungarian Academy of Sciences' funds, is scheduled to be approved by mid-July. There is still time for the government to reverse its course. It should do so. ■

Local science

Researchers in five Asian economies are working to address communities' needs.

One of the most commonly stated goals of science and scientists is to work to improve society. But which society? The needs and circumstances of people, communities and regions across the world are very different — from energy use and disease threats to natural-resource availability and pollution.

In a special issue this week, *Nature* explores how some of these local needs are being addressed across five strong science centres in East Asia: Hong Kong, Malaysia, Singapore, South Korea and Taiwan. Over the past few decades, each member of this diverse group has evolved its own model of how to pursue research successfully. Impressively, some of their key achievements are those in which they have matched the science agenda to explicit and unique local requirements.

That is a good model for others to follow, especially given that large numbers of people around the world are not well enough served by the agendas and interests that drive much of modern science. *Nature* has argued before that more scientists and funders should reach out to identify and tackle direct societal challenges in this way (*Nature* **542**, 391; 2017).

Each of the economies we highlight has a unique history that has shaped its research and development. Take Malaysia, a peninsula and constellation of islands sandwiched between Thailand and Indonesia. In the 1970s, it started to shift its economic reliance on cheap products such as tin, rubber and cocoa to higher-value commodities such as natural gas and palm oil. It then used applied science to foster a booming electronics industry. Some of its major exports today include other products of applied research, including chemicals. Yet this success has come with relatively low investment in science and technology.

More unusual still, almost half of researchers there are women (see page 500). In a News Feature this week (see page 502), among others, we profile Malaysian chemical engineer Suzana Yusup, who leads a centre that makes fuels from biomass waste, such as used cooking oil, rubber-seed oil and discarded distillate from palm-oil refineries. Her career has focused on green technologies that can help the environment and society.

Scientists in Malaysia, which has a predominantly Muslim population, are also developing Halal substitute ingredients for food, pharmaceuticals and cosmetics, reaping the benefits of a Halal economy that, in 2016, was worth US$2 trillion globally.

Malaysia demonstrates how applied science can generate the economic benefits that can allow officials to invest in societal needs. And it's not alone. Singapore, along with South Korea and Taiwan, has long focused on applied projects across electronics, physics and materials science. The success of these has boosted its gross domestic product (GDP). And the Singaporean government is now putting some of that money into national priorities — health care and biomedical sciences among them. There's a strong push to understand, detect and treat heart disease and cancers of the liver, stomach, breast and lung, which have a significant impact on Asian populations.

By most measures, South Korea is an impressive performer in science, making it a giant in the region. It invests more than 4% of its GDP in science and technology — much of it applied — and has a high density of researchers per head of population. Its output of scholarly articles has skyrocketed in the past two decades.

"Each of the economies has a unique history that has shaped its research and development."

But South Korea is also choking under a cloud of air pollution, and, as physicist Han Woong Yeom at Pohang University of Science and Technology writes in a Comment piece (see page 511), its science policy must be updated to address this and other national needs. That might already be happening. A 2015 analysis of development of the regional research and technology organization in Gyeonggi province suggested that policymakers had switched from a top-down approach to one that emphasizes the "detailed analysis of local industry needs" (S. Shin *Reg. Stud. Reg. Sci.* **2**, 424–431; 2015).

Not all scientists in conventional research-powerhouse economies might welcome such direct targeting of local problems, just as some frown when politicians talk up the need for applied science. But there does not have to be a trade-off between work that is of international quality and work that has a direct local impact. Hong Kong, for example, has grown into a hub for researchers investigating emerging infectious diseases, such as the avian influenza strain H5N1 and severe acute respiratory syndrome (SARS), both of which originated in Asia. Those teams published papers in leading journals. But research there has also demonstrated that closing live-poultry markets for a day or two each month could dramatically reduce the spread of bird flu and cut the risk to people. That's a win–win situation, the likes of which all societies should encourage — wherever they are. ■

Valediction

A reflection as the seventh editor-in-chief of Nature *hands over to the eighth.*

This issue of *Nature* is the last under my tenure as the publication's editor-in-chief. The first was published on 14 December 1995. A few personal thoughts seem in order.

Nature's editorial role since its foundation in 1869 has consistently been about support for outstanding science while also being a critically minded friend of the research community and its values. Fired by my own enthusiasms for astronomy and physics since childhood and as a researcher, and by this publication's ever-broadening interests and international ethos, it has been my extraordinary good fortune and privilege to work with many researchers and colleagues to help *Nature* to continue and develop in its mission.

As a journal, *Nature* has thrived by keeping abreast of some of the most inspired and inspiring research — insights into the human genome and the microbiome, developments in photovoltaics and the extraordinary flowering of exoplanet research are just some examples that have been a joy to see. The journal has also gratifyingly grown into areas that were well established elsewhere — organic chemistry and high-energy physics are two. And the totally unexpected has always felt best: *Homo floresiensis* ('the Hobbit') was perhaps my own favourite.

On the magazine components, a look back at some 1995 issues shows how focused *Nature* then was on narrow rather than widely interesting policy news, how little commissioned comment there was relating to the research enterprise and its external relationships and how impenetrable some of the language was in our News and Views section. Ever since, it has always been my ambition and that of the editorial teams progressively to open up our pages to more lively and comprehensible fare.

My regrets include wonderful papers that we failed to attract, and that we still have more to do in speeding up our handling of labyrinthine complexities that can arise in retractions and formal critiques of our papers. There are initiatives under way towards being more attentive in our content to the needs and interests of under-represented groups in the population and in the research community, and being equivalently more diverse in the make-up of our editorial team. I wish I had pushed harder on all of these fronts.

An editor-in-chief has a platform on which to champion readers' needs and interests — and also under-attended causes. Mine have included the interests of social sciences, reproducibility, healthy research cultures and environments, the tracking of research's societal impacts, and mental-health research. Throughout, my goal has been, above all, to make the weekly issue — much of it now published continuously online — something that as many as possible of our very demanding audience eagerly look forward to.

Whatever has been achieved, none of it would have been possible without great colleagues. *Nature*'s editorial staff over the past 22-plus years has included many inspiringly skilled and visionary individuals. As a result, while there have been some acknowledged missteps, the time we have spent has been rich in fulfilment — at least for me, possibly for them too, and above all, I hope, for readers.

As I move on to a new role as editor-in-chief of our publishing company Springer Nature, I thank those many people inside and outside the research community who have helped to make *Nature* what it is. Above all, I offer the *Nature* team my profound thanks. I wish them and my successor Magdalena Skipper all the very best in their abundant future responsibilities and opportunities. **Philip Campbell**