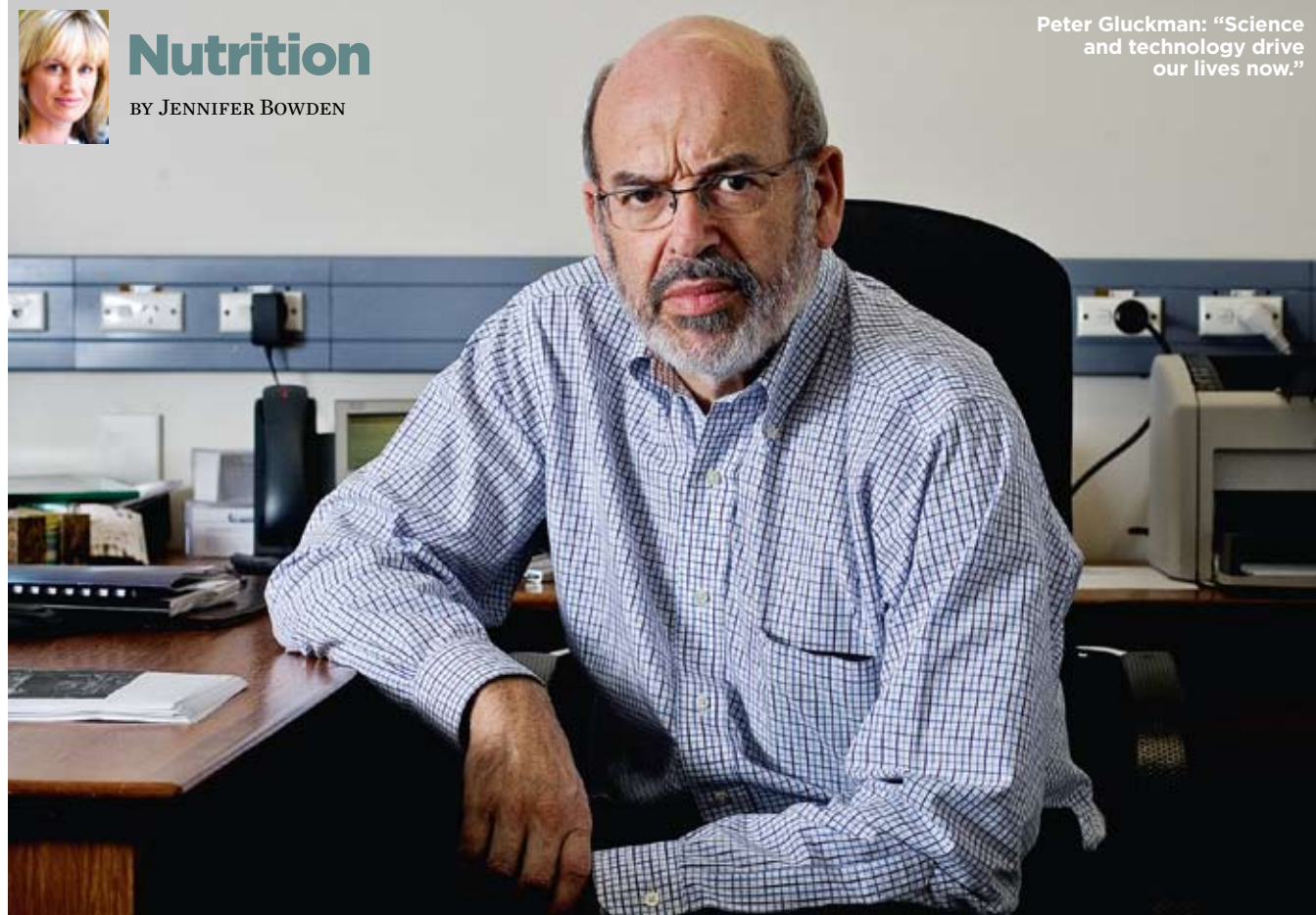




Nutrition

BY JENNIFER BOWDEN



Peter Gluckman: "Science and technology drive our lives now."

A point to prove

The Government's decision to reduce the focus on science and technology in primary schools comes at the same time as the chief science adviser is saying a better understanding of these subjects is key to the country's economic transformation.

For most of the 20th century, doctors strongly believed that stress and lifestyle caused peptic ulcer disease. But Australian physician Barry Marshall and compatriot pathologist Robin Warren doggedly worked against this mainstream scientific view in the 1980s to publish their research showing that *Helicobacter pylori* bacteria caused most duodenal and gastric ulcers. Even resort-

ing to self-experimentation – Marshall purposely infected himself with *Helicobacter pylori* and subsequently developed gastric ulcers – to prove their point.

Marshall and Warren's stand against the tidal wave of popular opinion succeeded. Their research was eventually accepted and ulcer treatment regimes altered, benefiting thousands of patients. And no sweeter ending could have been scripted than the Nobel Prize they were awarded in 2005.

Everyone loves a David and Goliath tale, not least the media. But could our love of the underdog be limiting New Zealand's progress?

"There might be 999,999 people saying this, but if there's one person saying that, the media like to give them equal time," says Sir Peter Gluckman, chief science adviser to the Prime Minister and founding director of New Zealand's Liggins Institute, a world-class medical research centre.

He believes the media's focus on finding or creating scientific controversies, and their lack of scientific understanding, is hurting the scientific community. In his inaugural address as chief science adviser, he said, "The media are part of the problem. But they're also central to any progress. Currently, science is presented rather naively as a series of breakthroughs – somebody's cured cancer for the 57th time; it's yet another cure for diabetes – rather than people understanding that science is a complex, non-linear process of continual accumulation, of reduction in uncertainty."

Gluckman tells the *Listener*, "The process of science is not one of breakthroughs. I've been in science 40-odd years; I don't think in terms of any event in my scientific career as a breakthrough eureka moment, maybe one or two little ones."

He believes the media's lack of scientific expertise is a barrier to the nation's scientific progress. "As this century unfolds and the way we live our lives gets more complicated, the issues that science has to face will get more complicated, and if the media's not in a position, along with scientists, to communicate it, then the public will be quite disturbed."

Central to this problem is a lack of understanding of scientific consensus. "The whole point of science is repetition and consensus; so you might do an experiment a hundred times and 90 of them tell you one result and five or so will tell you another result. You've got to understand why that's the case and how science actually gets consensus," says Gluckman, who highlights the recent cancelling of the Labour-led Government's decision to add folic acid to bread (as a way to reduce neural tube defects during pregnancy) and the ongoing climate change debates as examples of this lack of understanding.

"We get ourselves absolutely confused with things like folate, which was a very unfortunate episode," says Gluckman, who thinks scientists and the media failed to clearly communicate the significant evidence supporting folate supplementation.

"People have chosen outlier results and chosen them to be put into some sort of moral equivalent position against what the scientific consensus is. That just confuses the public, and I don't blame them for being confused. But the media's got a lot of responsibility here; they like to make these complex things into issues of antagonistic, adversarial views rather than representing the fact that science – by virtue of the fact that it is a process of reducing uncertainty – never proves anything; science disproves things or reduces uncertainty.

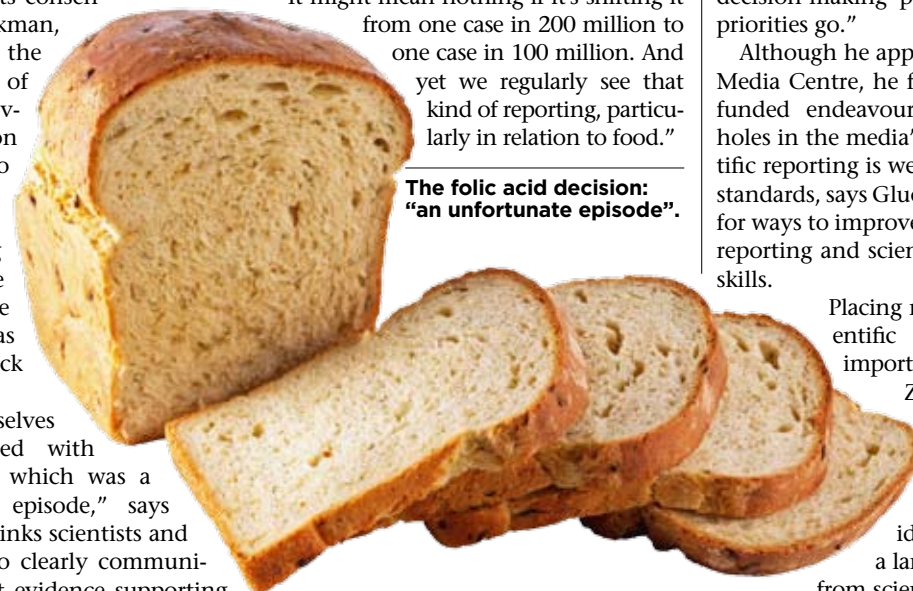
"Science is not simple," he says, "and particularly the issues that tend to impact on the public; they're usually involving complex science. Things like human biology and nutrition, for example, are complex issues. Nutrition represents very complex biology, which is projected by people as very simplistic biology. It's complex because you have food, which is more than ingredients. Then you have the complexity of the biological organism that eats it, namely the individual,

and every person has a different genetic, developmental and physiological make-up. Therefore the interaction between that individual and what they eat can be quite variable."

Another area of difficulty for the media is placing the risk associated with certain lifestyle and dietary behaviours in an appropriate context. "The media and others are bad at communicating concepts of probability and risk," says Gluckman, who dislikes the use of phrases such as: "eating food X doubles your risk of disease Y".

"You've got to look at what that means. It might mean nothing if it's shifting it from one case in 200 million to one case in 100 million. And yet we regularly see that kind of reporting, particularly in relation to food."

The folic acid decision: "an unfortunate episode".



"New Zealand won't have a future unless knowledge is used more cleverly. Our productivity depends on new ideas."

Using a numerator and denominator, rather than percentages or doubling terms illustrates the true impact. "If something increases your risk from one in a 100 to one in 10, [that] is a very big increase in risk. But an increase in risk from one in a million to one in 100,000, which is equally a tenfold increase in risk, is still a very rare risk."

Knowledge transfer from the scientific community to the public is one of Gluckman's top priorities and he says the media have to play their role. "If the media don't transmit how valuable science in New Zealand is, the public doesn't get excited about what New Zealand science does, then it must have an effect on decision-making processes about where priorities go."

Although he applauds the new Science Media Centre, he feels this government-funded endeavour is helping to plug holes in the media's skill base. Our scientific reporting is well below international standards, says Gluckman, who is looking for ways to improve the media's scientific reporting and scientists' communication skills.

Placing more value on our scientific achievements is also important, "because New Zealand won't have a future unless knowledge is used more cleverly. Our productivity depends on new ideas, and new ideas are a large part of what comes from science or technology. Sci-

ence and technology drive our lives now; they are what determines how we're going to live into the future, with all its challenges. They're the root to the economic transformation of this country." ■

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New ideas come from technology.