Bijlage VWO

2016

tijdvak 2

Engels

Tekstboekje

Tekst 1

Animal betrayal

Sir, It is a strange state of affairs that Dr Jarrod Bailey, Scientific Adviser of the British Union for the Abolition of Vivisection, should agree with the Academy of Medical Sciences, which asserts that experiments with "humanised'' genetically modified (GM) animals for research must be carefully controlled. Why does he not demand that they be abolished?

Further, he states that replicating in animals genetic "faults" that cause diseases in humans is poor science and rarely does this replicate human pathology and symptoms of diseases. Of course, because this is entirely artificial; the results having nothing in common with spontaneously arising diseases in humans.

But he muddies the water by saying that the genetic ''faults" rarely replicate human pathology. This implies that sometimes they do, but Dr Bailey neglects to say which these are. This opens the door to ever more animal experimentation, which casts an aura of acceptability on a practice his organisation was founded to oppose without compromise. What a betrayal of its founders' hopes his letter represents.
HENRY TURTLE
London SW24

adapted from *The Times, 2011*

Tekst 2

Jump into summer

Last year we had our pudding first and were then left with a huge portion of greens to eat up ─ in other words, the dry, sunny weather was followed by endless rain. This year the order is reversed, and how we're enjoying it, or should be.

Of course, asphalt melts in waves, heaths burst into flames and weaker folk wilt. That is what happens in a sunny summer. But there is no point complaining, for two reasons. First, the Clerk of the Weather has no complaints department. Nothing can be done about the weather, which is why it has such an impressive impact upon us, like the sea. For once, we are not the bosses, and no one will give us our money back. Even the Met Office[1)], that hothouse of harmless boffins, admits that it doesn't know what will happen in any particular week in the future.

Second, complaining about the weather is a delusion. When we complain, it feels as though we are doing something pleasurable, but it soon makes us feel worse. Much better to embrace the pleasures that are available and marvel at the rest. If sleep won't come, at least take a look at the night sky. If appetite disappears, at least take comfort at shedding a pound or two of fat. It is notable that, as in the snow, children instinctively know how to enjoy the anarchy of extreme heat (once they're shielded from its effects by kind adults). Sport, drink, open air, water and gardens all thrive in a heatwave, and we with them.

The Daily Telegraph, 2013

noot 1 The Met Office is the United Kingdom's national weather service

Tekst 3

Theatre

A Christmas Carol
Royal Lyceum, Edinburgh
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1 With its hardworking cast, outbreaks of yuletide song and lineup of larger-than-life characters, this staging of the Dickens classic is as rich as a plum pudding. With its drive to race through the story, enthusiasm for the author's poor-but-honest sentiments and its general eagerness to please, it can also be as sickly sweet.

2 As portraits go of Victorian illness, poverty and exploitation, Andrew Panton's production is on the chirpy side. There is a suggestion it might not turn out to be so in the chainmail curtain that sweeps around Alex Lowde's set, glittering like the iciest of nights and preparing us for the cruel chains that bind Jacob Marley to the dark recesses of hell. Panton uses it to project wintry silhouettes and spooky animations, not least the outline of Christmas yet to come, the most chilling of Scrooge's ghostly visitations.

3 **4**, it's a production disinclined to dwell on the dark side. Using the admired adaptation by Neil Duffield, it subjects Christopher Fairbank's Scrooge (suitably cantankerous and chastised) to the minimum of supernatural torment before exposing him to the good, honest values of community, friendship and plentiful carol-singing. He has reason to learn his lesson, but he gets off lightly.

4 The actors tear into it with gusto. They're forever picking up instruments, swapping characters and pushing around the furniture for seamless transitions between scenes. They make bright, brisk work of the play and their heart is clearly in the right place, but the most memorable part of the evening comes after the tale is told. With Dickens dispatched, the ensemble joins in a stunning medley of carols spliced together by musical director Claire McKenzie as snow floats down on the auditorium.

Mark Fisher
Until 4 January. Box office:
0131-248 4848.

The Guardian, 2013

Tekst 4

Fish farming

High-tech breeders

TOKYO

1 THE Japanese are great guzzlers of fish, but fish are in finite supply. And farming them to increase that supply can be tricky, because many species are susceptible to disease when crowded together. That fact is the impetus behind a study led by Takashi Sakamoto of the Tokyo University of Marine Science and Technology. Dr Sakamoto is using a combination of modern genetic techniques and classical breeding to produce fish that can survive crowding without falling ill.

2 His first task was to establish genetic maps for each of the species involved ─ flounders, trout and amberjack. Such a map is not a complete DNA sequence, which would be unnecessarily detailed, but rather a set of signposts, with which a geneticist can navigate his way around an animal's chromosomes. The signposts are places where DNA routinely differs within a species from one individual to another, and does so in characteristic ways. When sperm and eggs form, blocks of DNA from a creature's mother and father are swapped around, **7**. If you have enough signposts it is possible to follow these blocks through the generations.

3 Dr Sakamoto now has genetic maps for hundreds of individual fish, and he also has data, collected in collaboration with Japan's three main fishery-research institutes, on how well these fish did when faced with plague or pestilence. He has thus been able to tease out which versions of which signposts are associated with rude health.

4 It is not the signposts themselves which confer protection from disease. That is done by nearby genes. However, gene and signpost travel together from parent to offspring, so the presence of the one can be inferred from the presence of the other. And that gives Dr Sakamoto an invaluable head-start when it comes to breeding disease-resistant fish. He is able to see how many resistance genes have ended up in each animal and then pick the most resistant to breed from. He thus gains much of the advantage that might come from actual genetic engineering (i.e., directly transplanting resistance genes into fish eggs) without having to do the engineering itself.

5 It also means he can breed healthier fish without necessarily knowing what the health-giving genes are ─ though it would obviously be a bonus to have such knowledge, and he is indeed busy searching the DNA near the relevant signposts to find the truth.

6 Dr Sakamoto's research group has already managed to produce flounders which are resistant to viral lymphocystis (a serious problem on flounder farms) and these are now in the shops. It has also produced trout

that are immune to a bacterial infection called cold-water disease, and it is now working on amberjack that will be less likely to suffer infestations of monogean, a parasitic flatworm. The upshot should be healthier, cheaper fish — and happier fish farmers.

The Economist, 2012

Tekst 5

Europe

Charlemagne | Europe's worrying gerontocracy

1 SEEN from afar, Europe looks like a "gerontocracy", an American newspaper reported in 1963. Europeans were young in years and outlook (their median age was just 32). But their leaders included the 87-year-old Konrad Adenauer in Germany; Charles de Gaulle in France (then 72, and destined to hang on to the presidency for six more years); and the baby of the bunch, Britain's 68-year-old Harold Macmillan.

2 Today Europe again faces rule by the elderly. Not because its leaders are all ancient: modern politicians tend to flaunt pregnant wives and school-age children, and disport themselves in cycling shorts and running kit. Now it is the voters who have aged. By 2050, more than a third of potential European Union voters will be over 65. And because older voters turn out more reliably than the young, they could wield crushing power.

3 That alarms those worried about Europe's pension and welfare systems. David Willetts, a British Tory, has caused a stir with "The Pinch", a book accusing baby-boomers (a huge cohort born between 1945 and 1965) of stealing their children's future. Boomers own more than half of Britain's £6 trillion ($9 trillion) of personal wealth, he claims. Mr Willetts (born in 1956) fears that an army of retired boomers may vote for whopping sums to be spent on health care and pensions, against the wishes of younger taxpayers who might prefer spending on things like education.

4 Such fears are inspiring bold thinking. Ary Lans Bovenberg at Tilburg University in the Netherlands (born in 1958) wonders if parents should be given an extra vote at elections for each young child in their charge. An economist at Vienna University, Dennis Mueller (born in 1940) notes that the old have to take driving tests to keep their licences. What about citizenship tests before they are allowed to vote, similar to the civic quizzes faced by many immigrants? Some political parties, including Labour in Britain, have suggested that the legal voting age should fall to 16.

5 Such solutions tend to have drawbacks. They discriminate against those who cannot have children. Or they insult older voters who have served their countries for decades. In 2008 Austria became the first European country to allow 16-year-olds to vote in national elections. A lot of them promptly voted for far-right parties, which got more support from the young than from the old.

6 It is easy to be gloomy about the idea of a gerontocracy seizing power in the European Union. Eurobarometer opinion polls, which survey 1,000 citizens in each of the 27 EU members, offer rich seams of evidence that political and

economic preferences vary with age. **12**, older voters are less satisfied with their lives and more pessimistic about the economic future.

7 Overall, Europeans are less entrepreneurial and less mobile than Americans. The averages conceal age differences. A 2007 Eurobarometer found 61% of Americans would rather be self-employed. Europeans under 24 came close to American levels of enthusiasm for the risky freedom of the entrepreneur. But older Europeans preferred having a regular salary, thank you.

8 And yet a fixation on age risks missing a more serious problem facing Europe. It is true that Eurobarometer surveys show opinions varying with age. But such differences are trumped by those based on nationality. Take enthusiasm for self-employment. Older Europeans are less keen than the young on going it alone, but not by much. Yet at Europe's extremes the gaps are huge: 57% of Portuguese fancy being self-employed, but only 30% of Belgians. (The survey found Belgians especially keen on fixed working hours, a finding that rings true for anyone needing a Brussels plumber at the weekend.)

9 A recent Eurobarometer asked if governments should make it easier for older people to keep working after their retirement age, if they wished. It found small differences by age, but astonishing gulfs by nationality. Almost nine out of ten respondents in Britain, Denmark, Finland and the Netherlands said oldies should be helped to work if they wanted. At the other extreme, 55% of Greeks were opposed. That may be because Greeks lead the EU in believing the lump-of-labour fallacy: a huge majority agree that, as older people work longer, "fewer jobs will be available for younger people". The fallacy that working oldies would automatically steal jobs from the young is also popular in Cyprus, Hungary, Portugal and Italy, even though those countries face very different rates of ageing. In other words, national political cultures matter more than age.

10 Spain's government appears scared even to debate a higher pension age. Others are braver. In Nordic countries legal retirement ages are increasingly pegged to life expectancy.

11 Gerontocratic rule certainly poses long-term dangers. But Europe must above all avoid being pulled apart, as some countries tackle ageing better than others. Old age is not the enemy of reform: ignorance, selfishness and timidity are. The old have no monopoly on these vices and may have picked up some wisdom. In the coming decades, Europe will need much of that.

The Economist, 2010

Tekst 6

Review roundup: 'Lean In,' by Sheryl Sandberg

Daniel Lefferts

1 If you were worried that books have lost their power to spark heated national debates, Sheryl Sandberg's *Lean In* should put that concern to rest: The current Facebook COO and former Google executive has written a "sort of feminist manifesto" (as she writes in the book) about women in the workplace, lamenting the lack of females in leadership positions and urging women to be more assertive in their professional ambitions. "It is time for us to face the fact that our revolution has stalled," she writes. "A truly equal world would be one where women ran half our countries and men ran half our homes."

2 Few would argue with this ideal of gender equality. But in the weeks leading up to the publication of *Lean In*, many argued with Sandberg's ideas on how to attain that equality, some of which she had already spelled out in her popular TED talk and the commencement speech she delivered at Barnard College in 2011. Speaking to early criticism of the book, Jodi Kantor of the *New York Times* suggested that Sandberg "places the onus on women who are already struggling to fulfill impossible demands, and not on government and employers to provide better child care, more flexible jobs and other concrete gains." Deanna Zandt wrote in *Forbes*: "I'm all for assertiveness training. But without simultaneously taking on the structures that keep those norms in place, women are helping to reproduce them."

3 Others raised the question of whether Sandberg ─ whose net worth numbers in the hundreds of millions and who *Forbes* ranked the tenth most powerful woman in the world ─ is in a position to dole out career advice to women struggling with the day-to-day combination of work and family. *USA Today*'s Joanne Bamberger called *Lean In* "the latest salvo in the war on moms" and compared Sandberg to Yahoo! CEO Marissa Mayer, who recently banned working from home. "The message coming from these flourishing moms is less about empowerment … than it is about guilt," Bamberger wrote. "Sandberg's argument that equality in the workplace just requires women to pull themselves up by the Louboutin[1)] straps … is just as damaging as Mayer's office-only work proclamation. Both

these approaches are leaving a bad taste in the mouths of many working mothers who don't have the income or family luxuries of these uber-women."

4 But now that *Lean In* has hit shelves and official reviews are out, how does the critical response compare with the prepublication melee? Michelle Goldberg of *The Daily Beast* describes the early attacks on *Lean In* as "largely divorced from anything Sandberg has actually written or said" and praises Sandberg for "doing all she can" to push for gender equality in the workplace. Maureen Corrigan of *NPR* complains about the "ironed-out quality" of the book, saying, "If Mary Wollstonecraft had written this tepidly, the first women's movement might have wilted before it ever took root," but balances that by saying, "It's great to have a woman with such a platform speak up about sexism." Meeta Agrawal of *Entertainment Weekly* calls the book "the most cogent piece of writing I've encountered that speaks to the internal and institutional forces that can trip up an ambitious woman, whether she has a baby on board or not."

5 Susan Faludi, writing for *CNN*, was less effusive, suggesting that Sandberg has glossed over the struggles of single mothers: "Most single mothers operate under extreme social and economic impediments … that add up to a massive inequality in American society," she writes. "And this isn't because of a lack of lean-in self-confidence …. The flip side of the view that women can do anything if they 'just jump' is the assumption that anyone who doesn't should remain invisible. That message is the precise opposite of feminism."

6 Others have endorsed Sandberg as a new voice in contemporary feminism. *The New York Times*' Janet Maslin likened *Lean In* to Betty Friedan's groundbreaking *The Feminine Mystique*, writing that the book "will open the eyes of women who grew up thinking that feminism was ancient history." Even feminist scholar Anne-Marie Slaughter ─ who kicked up controversy of her own with an essay in *The Atlantic*, "Why Women Still Can't Have It All," and with whom Sandberg has had a longstanding feud ─ struck an overall positive tone in her review in the *New York Times Book Review*, calling Sandberg a "feminist champion."

adapted from *usatoday.com, 2013*

noot 1 Louboutin is een luxe designmerk voor onder andere schoenen

The west re-examines the rat race

If people lose their jobs, they sometimes also lose their bearings. A decision is made to take an entirely new direction in life: get out of the rat race, downsize, learn a language, take up ballroom-dancing.

The economic crisis that began in 2008 seems to have unleashed a similar search for meaning among some western intellectuals and economists. But the fundamental assumptions they are questioning are not personal, but political.

Last week, I found myself moderating a grandly-titled seminar on the "Future of Capitalism" at the Organisation for Economic Cooperation and Development in Paris. The star turn on the panel was Robert Skidelsky, the biographer of John Maynard Keynes, who has been much in demand over the past two years, as Keynes has come back into fashion.

Lord Skidelsky has started work on a book to be called *How Much is Enough: The Economics of the Good Life.* He argues that, over the past 30 years, the western world has become unhealthily pre-occupied with the pursuit of wealth. Lord Skidelsky says that "in almost all religions and moral philosophies, wealth is a means to an end — to live decently and agreeably. After a while the quest for more and more wealth becomes irrational, but our societies are all organised around the pursuit of wealth beyond limit."

Paris is a good place to try out this sort of argument. Nicolas Sarkozy, the French president, has sponsored a commission, featuring two Nobel prize-winning economists, to re-examine ideas of human well-being. The Stiglitz report, published last September, **__24__** the idea that gross domestic product is an adequate measure of human well-being. It insisted that other aspects of life, such as health, education, family life and the environment, must also be given due weight.

A similar school of thought is gaining strength in Britain. Lord Layard, another titled British economist, has long pushed the idea that public policy should concentrate on the promotion of happiness, rather than the creation of wealth. This sounds mushy but can have some surprisingly **25** implications: Lord Layard, for example, has been a driving force behind the British government's goal of making cognitive behaviour therapy more widely available as a treatment for mental illness. More recently, *The Spirit Level* — a book arguing that more equal societies are happier and more successful — has made a splash in Britain.

In some ways, lords Skidelsky, Layard and the other happy warriors are obviously right. Research suggests that, once a certain level of comfort has been attained, there is no connection between greater wealth and greater happiness. It is **26** hard to think of a moral philosopher — not even Adam Smith — who argued that the pursuit of wealth should be an end in itself. Slogans such as "Poverty sucks" and "The one who dies with the most toys wins" are bumper stickers favoured by junior investment bankers, rather than quotes from the great philosophers.

But while taking a more relaxed attitude towards the pursuit of wealth may make sense as a personal philosophy, it is an uncertain guide to public policy. It is relatively easy for the comfortable middle classes to play down the need **27**. But absolute poverty still exists, even in western societies, and adjusting to a stagnant national income can be a painful process, as many European countries may soon discover.

It is also clear that for China, now the world's second-largest economy, high rates of growth remain an absolute imperative — both to buy social peace and to drag hundreds of millions of people out of poverty. Even among Indian intellectuals, the Gandhian disdain for materialism is becoming **28**, as economists, politicians and a burgeoning middle class embrace the pursuit of wealth as both a personal and a national goal.

It would be **29** if the spiritual east embraced the ruthless pursuit of wealth just as the western nations that invented modern capitalism went for a Zen-like rejection of materialism. If the pursuit of rapid economic growth became a largely Asian pass time, the global balance of power would also change in ways that might make life in the west considerably less comfortable.

For better or worse, it seems unlikely that many western politicians, outside the environmental movement, will **30** the pursuit of economic growth as one of the goals of public policy. Some have occasionally toyed with this thought. In 1979, US president Jimmy Carter made a speech in which he argued that "owning things and consuming things does not satisfy our longing for meaning". A year later, he was defeated by Ronald Reagan, whose most effective electoral tactic was repeatedly to ask Americans if they felt better off than four years previously.

I, myself, find Lord Skidelsky's arguments fairly persuasive. On the other hand, I am also thinking of buying a 42-inch plasma television to watch this month's World Cup. Doubtless my giant TV will not bring me lasting happiness or spiritual fulfilment. But I think I might buy it all the same.

Gideon Rachman

Financial Times, 2010

Tekst 8

Climate change and extinction?

Ian Sample

1 A major review into the impact of climate change on plants and animals has found that scientists have almost no idea how it drives species to extinction.

2 Though some organisms struggle to cope physiologically with rising temperatures ─ a simple and direct result of climate change ─ there was scarce evidence this was the main climate-related threat to many species whose numbers were already falling. More often, climate change took its toll on life through more complex and indirect routes, such as reducing the abundance of food, making diseases more rife, and disturbing natural encounters between species, the review concludes.

3 The report warns that scientists have "disturbingly limited knowledge" on the crucial issue, and that many species may become extinct long before their inability to cope physically with warmer conditions becomes a danger. "This is arguably the most important topic in biology and the simple question of what actually causes a population to go extinct through climate change is completely understudied," said John Wiens, an evolutionary ecologist at Stony Brook University in New York. Understanding the precise ways that climate change affected different species was now "an urgent priority" for future research, he added.

4 Wiens's group analysed 136 published studies that described local extinctions attributed to climate change. Only seven of the papers identified a primary mechanism for the species' disappearance. None showed a simple relationship between species loss and the organism's tolerance of higher temperatures. Despite a wealth of studies describing how species adapted to climate change, by moving to new habitats, for example, Wiens said the details of how climate forces populations into decline were still largely unknown.

5 Writing in the journal *Proceedings of the Royal Society B*, the researchers describe how frogs in Central and South America can suffer when climate change causes fungus to spread more easily; how plovers in Britain are affected when higher summer temperatures reduce populations of craneflies; and how grey jays in Canada were less likely to survive the winter and go on to breed the following year when warm autumn temperatures caused their food hoards to rot.

6 These subtle shifts in the way species behave may make even small climatic changes dangerous for vulnerable plants and animals, Wiens said. "If you want to preserve species, you need to know what causes them to decline. Do the plants they feed on disappear? Does a competitor move into their range, or a new predator? Or maybe it is just too hot for that species," he added.

adapted from *The Guardian Weekly, 2012*

Tekst 9

MONEY

The Digital Wallet

1 **WHEN STUDENTS** in Pinellas County schools fill up their lunch trays in the cafeteria and walk over to the cash registers, they just wave their hands and move on to have lunch with their friends. Schools in this Florida county have installed square-inch sensors at the registers that identify each student by the pattern of veins in his or her palm. Buying lunch involves no cards or cash. The Fujitsu PalmSecure system they are using allows these young people to get through the line quickly ─ wait times have been cut in half since the program started ─ an important consideration in a school where lunch is only 30 minutes long. The same technology is used by Carolinas Healthcare System, an organization that operates more than 30 hospitals, to identify 1.8 million patients, whether or not they are conscious. It is also used as additional authentication for transactions at Japan's Bank of Tokyo-Mitsubishi UFJ.

2 Many physical characteristics can allow a machine to identify an individual, but only a few of them are both unique and accessible enough to be this straightforward to use. Fingerprints and faces are not as unique as we have been led to believe and can result in false positives. They are also easy to fake. Although irises are unique, capturing them requires someone to peer into a reading device and stare unblinking for several seconds, which is easy to flub and feels intrusive. The three-dimensional configuration of veins in the hand varies highly from person to person and is easy to read with harmless near-infrared light. So why are we still paying for everything with credit cards?

3 The only barrier to such a "digital wallet" is that banks and technology firms are slow to adopt it, says security guru Bruce Schneier. "All a credit card is, is a pointer to a database," Schneier says. "It's in a convenient rectangular form, but it doesn't have to be. The barriers to entry are not security-based, because security is a minor consideration." Once a large retailer or government agency implements such a system ─ imagine gaining access to the subway with just a high five ─ it has the potential to become ubiquitous. The financial industry already handles substantial amounts of fraud and false positives, and switching to biometrics is not likely to change that burden. It will make purchasing as simple as ABC.

-Christopher Mims

Scientific American, 2011

Start early for musical genius

GOOD news for pushy parents. If you want your child to excel musically, you now have better justification for starting their lessons early. New evidence comes from brain scans of 36 highly skilled musicians, split equally between those who started lessons before and after the age of 7, but who had done a similar amount of training and practice.

MRI scans revealed that the white matter in the corpus callosum ─ the brain region that links the two hemispheres ─ had more extensive wiring and connectivity in the early starters. The wiring of the late starters was not much different from that of non-musician controls. This makes sense as the corpus callosum aids speed and synchronisation in tasks involving both hands, such as playing musical instruments (*Journal of Neuroscience*).

Christopher Steele of the Max Planck Institute for Human Cognitive and Brain Sciences in Leipzig, Germany, says this is the most compelling evidence yet that younger-trained musicians have an advantage because their training coincides with a key period of brain development. At age 7 or 8, the corpus callosum is more receptive than ever to the alterations in connectivity necessary to meet the demands of learning an instrument.

NewScientist, 2013

Algae

1 Unlike maize, soya beans and oilseed rape (canola), algal farms don't take up valuable farmland, so algae-based biofuels don't threaten food supplies. However, Andres Clarens at the University of Virginia in Charlottesville has modelled the environmental impacts of algal farms and concludes that they require six times as much energy as growing land plants – and emit significantly more greenhouse gases.

2 "You have to add a whole lot more fertilisers, and the environmental cost of producing these is the primary drawback," Clarens says.

3 Using waste water instead of fertilisers helps, but not enough, he says. The only trick that tipped the balance in favour of algae in his models was to use nutrient-rich household waste like concentrated urine to fertilise the algae, but this would require new infrastructure and so is no short-term fix.

adapted from *NewScientist, 2010*