

Make way for the water

ENGLISH EDITION

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P. 6







FRONT AND BACK COVER ART: JEROEN MURRÉ



HIGH WATER I was born and raised on the IJssel.

I remember high water as something exciting. Doing homework at my desk, I would look out of the window and see boats glide over the dike. At low water, there wasn't anything to see.

The river wasn't something we talked about at home. We were safe and dry. It was only when I came to Nijmegen as a student that water became an issue. The Waalkade flooded. We all went to take a look! And in 1995, the Ooijpolder was evacuated.

In this VOX edition devoted to water, we reflect on this remarkable year. Author Jan Terlouw reminisces on the evacuation - he was Queen's Commissioner for the Province of Gelderland at the time. We also look to the future. What if the water rises? Should the Netherlands take additional measures? Or is our fear of flooding excessive?

We flee from the water, but it also attracts us like a magnet. If we could, we would all live on the Waal. And nobody leaves home these days without their water bottle: we've become welded to our Dopper (breeding ground for bacteria!). By the way, did you know that Nijmegen tap water comes from the University's backyard?

In that sense, I guess all of us Campus users kind of live on the waterfront.

Annemarie Haverkamp Editor in chief Vox

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WHO SWIMS IN **THE WAAL? /** P 24



ABOVE PAR dj niko nijman

Δ



After standing behind a turntable at a house party for the first time, Niko Nijman, or dj Vilosov, developed a taste for it straight away: "People went started dancing, people were hyped up, people started screaming. It was such a beautiful moment." Since then, the history student has been working with music non-stop and never stopped moving. He plays his own productions in café NDRGRND. "You have to get in touch with the audience, go on a journey together."

Check out the full video about Niko Nijman in the video section Above Par on **voxweb.nl**.

DULY NOTED

"The figures show we're dealing with something that has the impact of a very severe flu. Why has it exploded like this?"

How bad will the Corona virus get? This is a question on many people's minds at present. Professor of the Governance of Safety and Security and co-author of the evaluation of the Mexican flu, **Ira Helsloot**, calls for a more realistic approach in an article in *de Volkskrant*.



Hotel Erasmus A surprising experiment at the start of this new year: on the location of the Spinoza building, the Executive Board plans in the near future to create a new building for the Faculty of Arts. Estimated cost: € 70 million. For the Erasmus building, due to be renovated starting in 2023, the Board is considering new uses including student accommodation, a conference hall, and even a hotel. Student Housing Association SSH& is already dreaming out loud of student rooms in the highest building in Nijmegen. The Board will reach a decision after the summer.

Fraternity houses Nijmegen student fraternity life is at risk. A VOX survey shows that most Nijmegen fraternity houses are privately owned and have no licence for room rental. De Tempeliers, THOR, Elegast, De Gong, AVIS and Diana: none of them have the 'omzettingsvergunning'



The Refter's meals with meat were temporarily overpriced



Het Vensterhuis, headquarters of De Tempeliers

(conversion licence) required to legally rent out rooms. "We thought it wasn't necessary," explains the President of De Tempeliers. In the end, things turned out to be not as bad as they seemed: the court pulled the Municipality of Nijmegen back into line, and the Nijmegen fraternities breathed a sigh of relief.

Vantilt calls it quits Vantilt Publishers is shutting down. Owner Mar Beerens has transferred to publisher Boom Uitgevers in Amsterdam and the building in the St. Annastraat will soon have a new tenant. Four employees have lost their job. According to Beerens, Vantilt's financial future didn't look too rosy. Over a period of 24 years Vantilt published approximately five hundred books, of which many by Radboud University authors like Jos Joosten, Joost Roosendaal, Carla Hoetink and Lennert Savenije. "This is not just a major loss for the South East Netherlands, but for the entire country," says author and Professor Johan Oosterman.

Vacancies removed from website

Radboud University removed three vacancies for external PhD candidates from its website following a number of indignant reactions. The PhD candidates in question were to receive a \in 1600 grant from the German Gerda Henkel Stiftung, rather than be employed by the University. "It's scandalous that something like this could happen at my university!" tweets a PhD student from the Faculty of Arts on Twitter. The appointment of doctoral fellows has to do with the financing of the PhD positions, explains the Assistant Professor in History who wrote the vacancies. The vacancies were nevertheless removed from the website, and replaced by an official announcement stating that Radboud University doesn't wish to recruit PhD students on a grant basis.

STD clinic Students who fear they have contracted a sexually transmitted disease (STD) can soon be anonymously tested in Nijmegen. "In this region too, there's a big demand for our services," says founder Amit Atwal. The OneDayClinic on the Oranjesingel in Nijmegen is not only open for students, but also for other party-goers, people switching partners, and anyone else who'd like a quick STD test. The basic test for gonorrhoea and chlamydia costs € 100.

Refter charges too much The meat-based meals of Craft, one of the Refter suppliers, dramatically increased in price at the start of this year: from ≤ 5 to ≤ 5.50 for students, and from ≤ 5.60 to ≤ 6 for non-students. And that while the price of vegetarian meals at the same stall only increased by 10 cents. This led to a lot of complaints on Campus. Apparently, incorrect prices had accidentally been entered into the Refter's computer system. To compensate clients who had paid too much, the Refter is temporarily lowering its meal prices.

Peeping tom In early February, a peeping tom was signalled at housing complex Proosdij in the Verlengde Groenestraat. This information appeared in a letter sent by Student Housing Association SSH& to all complex inhabitants, after a report was made by one of the inhabitants. SSH& advises students to remain alert and to make sure that all windows and doors are closed so that no one can enter unnoticed. Inhabitants are also advised to keep their curtains closed after dark – especially when getting changed.

THE RIVER MUSTBE TAMED

BUT NOT TOO MUCH

After the flood disaster that nearly struck the Rivierengebied in 1995, the government took one protective measure after the other. Some dikes were raised by as much as one metre. Overkill, says the physical geographer; on the contrary, say the water authorities. 'This kind of extreme situation could occur again tomorrow.'

Text: Stan van Pelt and Jozien Wijkhuijs / Illustration: JeRoen Murré / Photos: Tom Hessels

he water is coming, warned historian and author Rutger Bregman in early February in a widely distributed pamphlet. "If we don't do anything, the flood disaster of 1953 might happen again," added *de Correspondent*. The water doesn't just come from the sea; the rivers too form a threat for the Netherlands. Think of 1995, when part of the Gelderland Rivierengebied had to be evacuated because the dikes nearly collapsed (see 'The near-disaster that united the Netherlands', p. 11). And more recently, in February of this year, the Waalkade was closed because of the rising water level.

And yet, not everyone agrees with Bregman's urgent call for more protection against the water. Alphons van Winden believes on the contrary that we've gone overboard, at least as far as strengthening the river dikes is concerned. Van Winden is director of water consultancy agency Stroming, which was involved in building the side channel near Nijmegen. On the website waterpeilen.nl and in newsletters, he has for years discussed the water levels in the Dutch Rivierengebied, comparing them with historical data.

Physical geographer Van Winden is of the opinion that safety norms have become too strict, he explains in the living room of his house in Ubbergen on the lateral moraine. The walls are adorned with topographic maps of various parts of Europe, and the table in front of us is covered in sheets of paper with graphs.

'SAFETY NORMS HAVE BECOME TOO STRICT'



The Beuningen floodplains flooded this February



Low water levels in the Spiegelwaal, August 2018

FLOOD PROTECTION MEASURES SINCE 1995

The near-disaster of 1995 led to the formulation of the Delta Plan for the Major Rivers. The government had half of the more than one thousand kilometres of river dikes in the Netherlands raised – in some cases by as much as one metre – and widened. The result was that dikes met the norm of being able to handle a water volume of 15,000 m³ per second. When this criterion was increased a few years later to 16,000 m³, the programmes Ruimte voor de Rivier (Room for the River) and Maaswerken (Maas Works) were developed. Instead of creating even higher dikes, the river was given more room, by dike repositioning and the creation of side channels, for example near Nijmegen. In 2017 the water authorities once again raised the norms - not for water drainage, but for dike strength. As a result, dikes will once again be strengthened, a project that is to be completed in 2050.

'THERE'S A LOT LESS MELTING **SNOW** THESE DAYS'

Since 1995, he explains, there have been multiple rounds of protection works, from dike reinforcement to the creation of the side channel along the Waal (Spiegelwaal) as a flood catchment area. As a result, the chances of a dike collapse are now only once in 1250 years. Because the safety norms used were stricter with each round, we are now very much on the safe side, says Van Winden. "The side channel near Nijmegen is beautiful, and it works well – the water level upstream is approximately 35 cm lower. But now in addition to the extra safety offered by the side channel, a new round of dike improvement is underway, and it will again cost billions."

He's referring to the latest series of protection measures, which also take into account the condition of the dikes. The government decided on these measures after the dike shift in Wilnis in 2003, when an entire residential area ended up under water. Of course, it's a good thing that we keep examining the quality of the dikes, says Van Winden, but the flood at Wilnis was due to an old peat dike settling because of the drought. "Here in Nijmegen the dikes are constructed of sand and clay, so we don't have these kinds of problems."



Low water problems

What's more, water levels have not risen in the past few years, he adds. "Look," he points to one of the graphs on the table. "From the 1980s onwards, the yearly high water peak was increasing every year, so the dikes had to be raised time and again. But since 2003, these maximum values have actually fallen by approximately 10%. We are now almost at the same level as in 1985."

He sighs. "Instead of investing in new dike reinforcements, we would be much better off putting our money into the main water channel – this is where the greatest challenges now lie. The river bottom is sinking steadily." Flowing river water is very powerful, explains Van Winden, think of the impressive gorge of the Grand Canyon. When this power is exerted sideways, the river meanders. In the Netherlands, this effect is curbed by placing breakwaters in the river. This fixes the water flow, but it means the water power can only be exerted in one direction: downwards.

The result is a sinking river bottom, which in turn leads to gas and electricity pipes that were initially laid in the river bed appearing on the surface. The same applies to the basalt blocks intended to reinforce the river bottom, for example on the Nijmegen Waalkade. When the water level is low, primarily in summer, this means ships have to transport much less cargo, or run the risk of ending up too low in the water. This is something we need to address, says Van Winden, for instance by raising the river bottom, or by placing breakwaters not perpendicular, but parallel to the dike. The peaks in water volumes may be lower in recent years, but won't they soon rise as a result of climate change? That's a good question, says Van Winden. "Whether and how climate change will affect high water peaks in Europe is as yet very unclear. High water is primarily determined by the speed and direction in which rain areas move across Western Europe. Rain usually moves from North to South, which rarely leads to extreme situations."

He explains that high water generally occurs when rain zones behave atypically and move in the direction of the river flow, towards the North. If this happens to coincide with melting snow from German low mountain ranges, then you get real extremes – like in 1995. "But there's not a single indication that this kind of combination of circumstances will occur more frequently as a result of climate change. And there's also less melting snow these days."

Barriers

The current dike norms are certainly not excessive, answers Hennie Roorda, from the Rivierenland Water Board. Protection against flooding is about more than the odds of water rushing over the dike, says the Water Safety Councillor, an administrative position comparable to that of Alderman. "A dike can fail for other reasons, such as piping, which involves sand being flushed under the dike, so that parts of the dike can slide away. This is primarily a risk in the East of the Rivierengebied, The refurbished Waalkade flooded for the first time in February 2020



Raised dikes protecting the polder

where there are several sand layers in the substrate." To prevent piping, the water board takes measures such as digging special sheets under the ground, like in Opheusden, and building barriers of coarse sand.

Even though water levels haven't risen in recent years, Roorda believes we have to remain vigilant. "You can't base your water safety programme on data from the last twenty years. Another extreme situation could occur any day, and we have to be prepared. The Dutch water authorities base themselves on models by the KNMI and IPPC, which are updated every few years."

Roorda is certainly not trying to deny that there are other problems, like sinking river beds that form an obstacle for shipping. These problems are also being addressed, she explains, by a programme known as integrated river management. This collaboration between local water boards, Rijkswaterstaat, the provincial government, municipalities and nature conservation organisations is intended to keep the river area safe,

'EVEN **DIKES** Can Fail'

green and navigable. "These dialogues are increasingly gaining momentum, but there's certainly still lots of room for improvement."

She believes citizens also have an important role to play. In these days of climate change, it's time the Dutch became more aware of the fact that they live in a river delta, she says. "We are the drain or Europe, so surely we want our government to take serious climate measures! In that sense '1995' was a good wake-up call. Give us today our daily bread, and from time to time the threat of a flood." *****

RADICAL PROTECTION IDEA: FLOODING PROVINCES

When considering water safety, experts and researchers don't look only at the rivers, but also at the rising sea level. Geert van der Meulen, researcher at Delft University of Technology, investigated an extreme scenario: flooding parts of Zeeland, Friesland, Groningen and Zuid-Holland, thereby relocating 1.7 million people.

"As part of that research project I designed a proposal for a kind of hybrid Netherlands that would be able to deal with a sea level rise of ten metres," says Van der Meulen. "This would require us to give up areas of land." The plan elicited many critical responses, especially from the areas to be flooded. Van der Meulen argues that although this is very understandable, it's partially due to a lack of imagination. "Those areas of land wouldn't be turned into ponds; you'd still be able to use them. But for many people, this is a bridge too far." For example, areas of land wouldn't have to be flooded permanently, but only for part of the year. "If a park is, for example, mainly used in summer, you might decide to flood it in winter. Or we could raise the infrastructure, or make some parts of it floating. Technically, so much is possible."

The problem is not the technology, but society, says Van der Meulen. "There's a lot of resistance to any adaptation to climate change or a potential sea level rise, because the measures give us little satisfaction in the short run; we do it for future generations. This kind of social reluctance is very difficult and slow to break through."

And this while there is no better country than the Netherlands to address this issue, he says. We have the finances, and the technology is available. "But we're so used to dry land. If our cellar gets flooded, we make an angry phone call to the municipality, but we aren't expected to do anything ourselves. It's hard to sell to people the idea that they have to make sacrifices to ensure future generations can continue to live in the Netherlands."

THE NEAR-FLOOD THAT UNITED THE NETHERLANDS

The flooding of the Waal, Maas and Rhine in 1995 led to the largest evacuation since World War II. After weeks of danger and uncertainty, 250,000 people were swiftly evacuated. Disaster didn't strike, but the Netherlands embraced the flood like an old friend.

Text: Laura Cuijpers / Photos: Bert Beelen



n 31 January 1995, following a great deal of hesitation and consultation between city mayors, dike wardens and the Queen's Commissioner at the time, Jan Terlouw, the latter decided to initiate the evacuation of a large portion

to initiate the evacuation of a large portion of the Rivierenland. The water at Lobith had reached a record

height of 16.63 metres above NAP and it was concluded that the safety of the inhabitants could no longer be guaranteed. On the Waal near Nijmegen, 150,000 inhabitants were suddenly evacuated from the Ooijpolder.

It was a spectacular sight, a huge exodus of people, recalls Thed Maas, journalist at *de Gelderlander*. At the time he was living in Beek, on the edge of the area that had to be evacuated. "I was working for the newspaper and on my way home I saw a long line of people on the road. I didn't yet know my own street was also being evacuated. When I got home, my wife told me we had to leave."

Solidarity

The evacuation instantaneously evoked a feeling of solidarity. Neighbours helped each other take things up to the attic and move furniture. The hectic events also appeared on TV: there were special news flashes, and images of frightened farmers were broadcast across the globe. Maas: "The media went totally mad. To people from the Western Netherlands and abroad, things looked really bad."

But were the people in the village of Beek frightened when they heard they had to leave their homes? Maas: "Not at all. People had been living in the area for years, in some cases for generations. And we knew it would take the water at least two days to reach our homes, if it did at all." There was even a kind of holiday spirit among some of the inhabitants. Many people ended up staying in neighbouring hotels, and they would get together in the pubs for a drink or two. The polder inhabitants had often seen the river level reach impressive heights, and they weren't that impressed by the rising water. This became even more apparent when Maas and his colleague walked into a pub in a small village across the German border. "The water was just as high there, it was the same area. But they didn't have to leave. They were all sitting around making fun of those crazy Dutchmen."

Exceptional

Lotte Jensen, Professor of Dutch Literary and Cultural History at Radboud University, was a student in Utrecht at the time of the flood. "I remember a lot of people came to the Jaarbeurs Exhibition Centre, which had been turned into a temporary shelter. And there were lots of people on the trains and at the Central

Taking shelter in the Jan Massinkhal in Nijmegen



Exodus from the Ooijpolder



'DID WE FEEL Frightened? Not at all'

Station." Jensen is currently working on a largescale study of disasters and Dutch identity formation from the sixteenth to the nineteenth century. Even though she didn't personally experience the 1995 flood, looking back she refers to it as an 'exceptional case'. "Of course there was some damage, streets were flooded. But the dikes didn't actually collapse."

This didn't stop the Dutch from responding as they have always done when there is a disaster. "This is really very interesting. Lots of elements you would normally see in a real flood disaster also made their appearance at the time. For example, there was a big fund-raising campaign to help the victims." Just as in 1855 and 1861 when the Betuwe was flooded, says Jensen. "All over the country people collected money for the victims in the Rivierengebied. Huge sums were raised - we're talking millions of guilders." Another Dutch tradition also made its appearance again: singing songs about floods. In 1995, Marco Borsato performed during the fund-raising campaign on TV, but for centuries, songs had been used to spread the news, raise funds, and help people process the disaster. For example, after the storm tide of 1825, which claimed 379 lives in the Netherlands, a song was written 'to a sad tune' that extensively explored the facts and emotions surrounding the disaster.

Wonder

The centuries-long struggle against water is so deeply embedded in our system that even after an evacuation without a single victim we fall back on our traditions. Does fear of the water play a big role in this? Jensen: "I think we like to think we're very safe, precisely because we have so much experience and expertise." Disasters do often lead to improving dikes or strengthening the infrastructure that protects us against the water. After the Zuiderzee flood of 1916, we built the Afsluitdijk, after the disaster of 1953, the Delta Works. The flood of 1995 represented another important turning point. It led to the 'Ruimte voor de Rivier' (Room for the River) project which included, among other things, the creation of a side channel in the Waal.

Ultimately, the Dutch have a paradoxical relationship with water, says Jensen. "In 2018, the level of the Waal was once again incredibly high. A few more centimetres, and the land would have been flooded. I went to take a look at it, and somehow it was still difficult to imagine the impact this would have. You look at the danger with a kind of wonder and assume that everything will be all right. Some people say we need these kinds of disasters to realise how vulnerable we are." *****

'IF A DIKE FAILED, THE HOUSES WOULD BE FLOODED' In 1995, author Jan Terlouw was Queen's Commissioner for the Province of Gelderland. For *Vox*, he reminisces on the evacuation of the Rivierengebied. 'Looking back, it was nothing compared to a real flood disaster like the one in 1953.'

Text: Jan Terlouw / Photo: Rob Voss

25 years ago, the water in the Maas and the river basin of the Rhine, Lek and Waal, was very high. If you walked along a dike in the Betuwe, you saw on one side an enormous body of water: the summer dikes had been completely flooded and the floodplains were full. On the other side, worryingly low, you could see houses. It was clear that if a dike failed, the houses would be flooded, in some places maybe up to the first floor, in others up to the chimney. People were getting nervous, and rightly so. Were we on the eve of a disaster? Memories of the great flood of 1953 were still fresh in our minds.

In those days, the Disaster Decree stated that in the case of a disaster or risk of a disaster in a municipality, the mayor was given certain powers. If more than one municipality was involved, these powers were transferred to the Queen's Commissioner. In 1995, I happened to be Queen's Commissioner for the Province of Gelderland. And there was clearly a risk of disaster in several municipalities.

We asked for advice from the dike wardens. They looked at the discoloration of the dikes, and examined them to assess the risk of piping, small leaks in the dike that could lead to collapse. We asked for advice from hydraulic engineers, who studied softening lines in the dikes. We asked for advice from meteorologists. What was the temperature doing to melt water in the mountains? Was it going to rain? Was there a danger of the dikes collapsing?

Sandbags

Overall, the expectation was that the dikes would hold, but a collapse could not be ruled out. This would almost inevitably lead to people drowning, a risk we were clearly not prepared to take. So we decided to evacuate, the riskiest area immediately, the next one the following day, and so on. People seemed pleased that a decision had been made.

It was not an easy task. How many people could manage on their own? Who needed help? Where would the elderly and the sick go? How many traffic jams and how much congestion would this cause and where? What would happen to the livestock? I gained a lot of respect for the Dutch genius for improvisation. It turned out that 95% of people managed fine on their own. And everyone was very helpful. At the Provincial Government Building, we would get phone calls from people saying they "could take in 80 cows". Actually, it all went incredibly well.

On Wednesday 1 February in the morning, a crack appeared in the dike at Ochten, on the Waal. Life-threatening, since the land in that area is very low. Mayor Henk Zomerdijk correctly ordered an immediate evacuation. With the help of sandbags and soldiers, the dike held in the end.

Helicopter

For the people forced to leave their homes in a hurry, it was very difficult of course. I personally remember the administrative problems most of all. On paper, everything was organised perfectly. It was clear who had the power: the mayors and at a higher level the Queen's

'I GAINED A LOT OF RESPECT FOR THE DUTCH GENIUS FOR IMPROVISATION'

Commissioners. But what about at national level? In practice, the Minister of the Interior Hans Dijkstal didn't have much to do. This was difficult for him. To not do anything while some hundred thousand people were being evacuated? While members of parliament were asking questions? And foreign media flooded the country? Not do anything? An impossible task. Should the Queen's Commissioner be given more powers? Please no! The media would immediately suggest things were not going well. Should the Queen come over for a visit to show support, or would this be too much of a distraction? Not do anything - that was maybe the hardest thing of all. On Thursday night, the Queen's Commissioners for Overijssel, Gelderland and Zuid-Holland were invited to The Hague for a consultation. We didn't want to go; we wanted to remain at our command post at the Provincial Government Building. Please, come, they said, we'll send a helicopter. We didn't want a helicopter; we wanted to be left alone. In the end we did go, only to hear at the Ministry about the water level at Lobith. Something I was, of course, being informed of minute by minute.

Mud

It lasted a week. During my military service I was acting company commander and I understand the army's command structures. That week I was once again an army commander, for a while democracy didn't exist anymore/. It was quite interesting. A lot of people around me did a great job. The deputies and the members of the Provincial Councils had enough self-control to not get in the way, the administrators were efficient, and there was optimum collaboration between soldiers, dike wardens and agricultural organisations.

I learned a lot that week. About the crucial role of water in our country. About the effect of a disaster risk on decisiveness. (That week really boosted the dike strengthening operations in the years that followed). About the role of politicians and administrators.

For the many thousands of people who were forced to leave their homes, for the people along the Maas who had to shovel out the mud from their houses, it was of course a difficult time. But looking back, it was nothing compared to a real flood disaster like the one in 1953. I was a student at the time, and I spent a week under the orders of a dike warden, throwing sandbags into holes in the dikes. Everywhere you saw cows floating by with bloated bellies. From time to time a car was found with drowned people inside. Nearly two thousand people died. The memory of that disaster always resurfaces every time I think about the high water incident of 1995. *****

Jan Terlouw (1931) is a writer, former nuclear physicist and former politician (D66). From 1991 to 1996 he was Queen's Commissioner for the Province of Gelderland.



UNDER WATER

Water can be very soothing. Under water there is complete silence, above water you hear the nature around you. Water – in its fluid or solid form – is the ultimate place for exercise.

Text: Bregje van de Weijer / Photo: Duncan de Fey

TIM GULPEN (25) PUBLIC ADMINISTRATION

"I was diving in South Africa last year. We came across a school of sixty or seventy dolphins. It was incredible. The cacophony of their clicking and all those dolphins around you – these are the moments you do it for. I like to go on group diving holidays, and I've been to Egypt and the Philippines. These are the real highlights: we do three diving sessions or more a day.

Two years ago, I joined the Kaaiman diving team in Nijmegen. In summer we dive every week, in winter less frequently. I also give snorkelling lessons.

Diving isn't a difficult sport, but you have to be comfortable under water. The water is all around you: above, below and to the side. When you're calm, you use less air and you can stay underwater longer. It's a mindset. When I'm consciously busy diving, I'm completely calm. It's quite meditative actually. Under water, I'm completely relaxed.

For me diving is a way to escape the 'student bubble'. Because I'm a member of a regular diving association, I meet people of all ages from Nijmegen and I get hear about what goes on outside student life in the city. We share the same hobby."

'IT'S QUITE MEDITATIVE ACTUALLY. UNDER WATER, I'M COMPLETELY RELAXED'





















POO BACTERIA IN YOUR DOPPER

We all know we should wash our water bottles on a regular basis. But who actually does that? After reading this article, chances are you'll be much more motivated to grab that washing-up brush. 'Water that contains these kinds of bacteria is not safe for consumption.'

Text: Marit Willemsen / Photos: Rein Wieringa

hey are everywhere. Dangling from the hands of students on their way to the lecture hall, glued to the mouths of sweaty sports centre visitors, on office desks next to the sandwiches brought in from home. The Dopper. Jokingly called 'the cigarette of 2019' by Assistant Professor Lucienne van der Geld in a recent VOX column.

The Haarlem company that produces and sells ever-increasing numbers of Dopper bottles sometimes get complaints about bottles 'smelling like my grand-mother's attic', as can be read on their website. Many people are apparently under the illusion that a water bottle contains only water. You just rinse it and you're good to go. The occasional unpleasant smell can be eradicated with a bit of washing-up liquid. But what if we take a closer look, and submit five random Dopper bottles to a bacteriological test? *Vox* carried out a sample test on Campus.

Cotton swabs

"This will be my urn one day." Bas Nietsch (20), student of English Language and Culture, laughs as he casually tosses his beloved lightblue Dopper in the air. He's had it for seven years. Nietsch' mother had had enough of continuously buying water bottles, he explains. "One day she came home with this Dopper." Nietsch bangs the bottle down on the table. " 'Here you go'," she said." How well does Nietsch treat his future funeral urn? He washes it every week using water and washing-up liquid, he explains. OK, sometimes every two weeks. He thinks that's good enough.

Davide Cellamare (34), Postdoc in History of Philosophy, bought his azure blue Dopper last September – before that he simply drank water from a glass. Three times a week he washes the bottle in the dishwasher. "I really should do it every day," he says.

Communication Science student Nikki de Nies (26) aims to clean her Dopper thoroughly once a week. She even bought a special chemical to keep her steel edition super clean. "But I do sometimes forget," she admits.

Nietsch, Cellamare and Nies all three agree to have their Dopper swabbed. Two other Dopper users spontaneously volunteer their bottles. A cotton swab is run along the outside and the inside of the mouthpiece. The swabs are then put into special test tubes and are sent by post to the Canisius-Wilhelmina Hospital laboratory, where Microbiology Analyst Maayke Bohne grows her cultures. Within a few days we find out what grows and flourishes in the five Dopper bottles.



Slime

"I'm actually really impressed," says Physician-Microbiologist Andreas Voss after studying the result. He runs us through the cultures identified by Bohne and her lab. Some of the flora on the petri dishes were to be expected, says Voss. "You drink from a Dopper and you touch it, so I assumed we would find throat, mouth and skin flora." And in fact, this was the case in all the bottles.



- 1. Wash your bottle every day; hot water is usually enough.
- 2. Let the Dopper dry completely. Don't refill it immediately – especially if you don't use a dishwasher that washes and dries it. Voss: "This is the only way to kill bacteria that like humid environments."
- 3. For the absolutely risk-averse: stick to your own Dopper, and don't drink from other people's bottles.

'PEOPLE **CONTAMINATE** THEIR OWN DOPPER BY DRINKING FROM IT'

Two of the bottles studied only contained skin and mouth flora; the others contained more life forms. For example, to his surprise, Voss found large numbers of non-fermenters. "These microorganisms thrive in humid conditions and occur naturally in water," he says. But they don't appear in such numbers in tap water. One of the Dopper bottles contained not only large quantities, but also a great variety of non-fermenters.

"Maybe this Dopper bottle is lined with a thick layer of biofilm," says Voss. A biofilm is a layer of microorganisms, surrounded by self-produced slime. "I can't be sure, we would have to test the water too," explains the microbiologist. "Either way, the owner should probably switch to another Dopper bottle, or at least clean it more thoroughly."

The same Dopper also contains *Staphylococcus aureus*, a pathogen. "Approximately 20% of all people carry this microorganism in their throat and nose," he says. "The owner of this Dopper might well be a carrier. I wouldn't want to drink from this bottle. Especially

because of the biofilm, I wouldn't recommend sharing this bottle with others." However, the pathogen is nothing compared with what Voss finds in one of the other bottles: various kinds of *Enterobacter cloacae*, intestinal bacteria. Voss: "These bacteria should never be present in drinking water. Water that contains these kinds of bacteria is not safe for consumption."

Disgusting

Poo bacteria and a thick biofilm: it sounds pretty disgusting, but are all these bacteria actually dangerous? "No," says Voss. Even the intestinal bacteria are unlikely to make people ill. And in most cases, the organisms on a Dopper come from the users themselves. People contaminate their own Dopper by drinking from it.

"Ugh," says student Nikki de Nies when she hears about the organisms found on the Doppers. She's not really surprised: when she's in a hurry – which is often – she doesn't wait for her Dopper to dry properly. After all, it makes little sense to dry the bottle with a tea towel if you're going to refill it anyway. Nies: "I'm a bit chaotic." She resolves to be more thorough when cleaning her bottle. "Now let's just hope I keep this up. *****



NEWS FROM THE UNIVERSITY STUDENT COUNCIL AND THE WORKS COUNCIL

www.numedezeggenschap.nl/en

POINT TAKEN!

University Student Council

Works Council

Dear readers,

Officially, it's not allowed, but since this is our first USR column of 2020, we'd like to take this opportunity to wish you a belated but very happy New Year!

A new year means for us as a student council that we continue with renewed energy to represent the interests of students to the best of our abilities. In this respect, we're off to a good start: in our last consultation with the Executive Board, we talked about introducing an **Emergency Fund** that all students could apply to for a loan or gift when facing financial problems as the result of personal circumstances. We consider this to be a very important development and want to make sure it is set up in the best way possible. In this context, we've requested clear frameworks for assessing applications and a critical consideration of who will be responsible for granting the loans; in this way, we reduce the risk of subjectivity and ensure a fair procedure.

We are also organising the third edition of **Radboud by Night**!, an event born out of the Campus Night and the Night of Professors, two events organised by USR in the past to promote more lenient opening hours for Radboud University. These days, the theme is clearly less relevant, but thousands of students still join us at the university every year for a wonderful evening and night programme full of sports, games and culture. We can already reveal that this year, President of the Executive Board Daniel Wigboldus will once again DJ!

The last topic we would like to mention in this column is internationalisation. Did you know, for example, that more than 14% of all Radboud University students are from outside the Netherlands? The large inflow of international students in recent years requires some adaptation and translation of the current systems. As student council, we also want to contribute our ideas. For example, on 3 March, we are organising an event entitled **How to Internationalise your Association**, intended for all Radboud University student board and committee members. We will also work towards offering more low-threshold Dutch language courses to help international students integrate. We have submitted a proposal to this end to the Executive Board.

In addition to the above-mentioned topics, there are, of course, lots more themes for us to focus on as student council. Are you curious about our work, or would you like to give us with some input or feedback? Please contact us at usr@ru.nl or drop by our office in TvA1.

Regards, The University Student Council

Lifelong Learning

Radboud University wants to invest in lifelong learning. This is the University's response to the government's expressed wish for post-initial programmes to follow regular academic programmes. A number of faculties already provide successful post-initial programmes. In this way, lifelong learning will hopefully grow in coming years into a new branch of education for Radboud University. The aim is within two years to create an organisation that offers a broader set of programmes in close collaboration with the faculties. This new branch of education will finance itself as a non-profit entity. In two years, the organisation and its programme will be assessed. Based on this evaluation, the further development of the new educational branch will be discussed and planned. The university participational bodies are enthusiastic about this development. One point for attention is how individual lecturers can contribute to the post-initial programmes while teaching the regular programmes. The appeal of academic post-initial education lies in it being rooted in higher research education, which makes it logical that the income from this branch should also benefit Radboud University research. One thing we considered is whether two years is too short a period to set up new initiatives and demonstrate their viability. The Executive Board indicated that the first two years were primarily intended for building on existing programmes.

Another important aspect is the relationship with the regular programmes. At the moment, Radboud University is not taking part in a national trial aimed at making student enrolment more flexible; in this trial students can pay tuition fees not on an annual basis, but based on study credits. The Executive Board did, however, indicate that it wants to support the shift towards longer learning periods in initial programmes, and think less in terms of financial returns only.

More concrete ideas are still lacking at present, and will only become clear once further steps are taken at national level. In addition to assessing the current investment in post-initial education, the participational bodies will continue to closely follow the debate on the broader significance of lifelong learning.





SCIENTISTS USE THE MOSTWATER

Every day at Radboud University a multitude of toilets are flushed, water bottles filled, laboratory equipment cooled and plates washed. What is the total volume of the drinking water we use, and how can we reduce our consumption?

Text: Anouk Broersma / Illustration: Roel Venderbosch

n 2019, a total of 101,307 m3 of drinking water flowed from the Campus taps. This comes down to 3.6 m³ or 3600 litres per student or employee, calculated Toon Buiting from the Department of Property Management. According to the National Institute for Family Finance Information (NIBUD), a one-person household uses thirteen times this amount on a yearly basis: 46 m³. Incidentally, Radboud university medical center is not included in this calculation: in 2019, they used another 231,000 m³ of drinking water.

Buiting also calculated for VOX how much water was used last year by each individual University building. The Huygens building is a big consumer, partially because laboratories require a lot of water for things like cooling. The labs are responsible for approximately one third of the total water consumption on Campus. This explains why sometimes smaller buildings still have a relatively high consumption. Buiting: "Take the Nanolab. It's very small, but uses 1230 m³, a proportionately large amount."

And besides the labs? Approximately 12% of the water is used for catering: in the dishwashing area or behind the bar. And with 8% of the water we take a shower after sporting activities. The rest goes on daily activities like flushing toilets, washing hands, filling water bottles and cleaning. Even though according to Buiting, cleaning requires less and less water – a microfibre cloth sometimes works wonders.

Because of all the water used for catering and showers, the Gymnasion is the second biggest consumer of water, followed by the Erasmus building. Even though in the case of the Erasmus building, some of this water was needed for the construction work in the Thomas van Aquinostraat. A lot of water was used in the demolition phase to avoid stirring up too much dust, and in the construction work to mix building materials.

Coolers

Over the past years, substantial steps have been taken to reduce water consumption. In 2012, water usage amounted to 172,423 m³, corresponding to 7.2 m³ per student or employee. Buiting: "Our goal is to reduce water consumption by 2% per year, on average in recent years we have achieved a reduction of 6%."

To a large extent, this reduction is due to water-saving measures in laboratories. "Eight years ago, water consumption in the Huygens building was twice as high as it is now." In the past, laboratories generally used spiral coolers: water flows through the spiral, heats up during cooling, and is flushed into the drain. Many of the newer systems work with air and there are even cooling systems that don't require any water, even though these sometimes use proportionately more energy.

Another place where the University saves water is on the roof of the Erasmus building. Until recently, the roof was the location of a



'wet cooling tower' for air-conditioning. This sometimes caused problems, which led to extra water being used. The tower has now been replaced with a 'dry cooling tower' that doesn't use any water. The new cooling systems for server back-ups also don't use any water, and air humidifiers are only used in the labs. Buiting: "Air humidity in offices is usually high enough. Employees sometimes complain about dry air, but this is usually due to dust." Tidying up and cleaning are more effective than switching on an air humidifier.

Rain water

All the drinking water on Campus comes from Heumensoord (see 'Tap water from the University's backyard, pp. 40-43). In addition, on the roofs of the Grotius and Huygens building there are grey water systems: large containers that catch rainwater which is used to flush the toilets in those buildings. Ten years ago, when the containers were installed, the idea was that this would be a more sustainable system. After all, it eliminated the need to pump and filter drinking water for 'lessor purposes' such as flushing away poo. But in practice, the sustainability advantages are limited, explains Buiting. "Our drinking water comes from sandy soil, so it doesn't have to be filtered as much as, say, surface water. But we did have to install additional concrete containers and pipes." The reduction in drinking water consumption doesn't compensate for the costs and use of materials.

What's more, the grey water system increases the risk of legionella. Since drinking water and rain water run through different systems, drinking water flows through the pipes slowly, in some water points that are used less frequently almost too slowly. In view of all this, during the construction of the new Maria Montessori building, the grey water system wasn't even mentioned as an option.

What Radboud University does invest in heavily, in an attempt to reduce gas consump-

tion, is the geothermal heating system. In winter, the University pumps groundwater at approximately 10° Celsius from a storage area behind Mercator 2, a heat pump then heats the water and uses it to heat the Campus buildings. As the water cools off, it's redirected to another underground storage source near the botanical greenhouses. In summer, water from this source is used to cool the buildings. Approximately 1 million m³ are therefore pumped back and forth. In well-insulated new buildings like the Huygens building, the geothermal heat pump seems to work very well, says Buiting. "We're now trying it in the old buildings. Although we'll probably always need a bit of gas for these buildings, for instance when it freezes hard."

If you would like to know more about the geothermal heat pump, Radboud University has made a short film about it: https://www.ru.nl/ uvb/duurzaamheid/energie/duurzame-energie-0

FISHIN FISHIN THE ANAL Illustration: Jeroen Murré

COMMON ROACH 45–50 CM / 1000–1800 G

> COMMON BLEAK 15 CM / 60 G

KESSLER'S GOBY 22 CM / 20-75 G

NORTHERN WHITEFIN GUDGEON 11,5 cm / 25-50 g

MONKEY GOBY 20 CM / 50 G IDE OR ORFE 30-50 CM / 2200 G

23.15

COMMON BREAM 30-90 CM / 2000-7280 G

k

EUROPEAN PERCH 25-60 CM / 2000-4800 G

PIKE-PERCH 50-120 CM / 20.000 G

ROUND GOBY 10-25 CM / 50 G

PEOPLE WANT TO LIVE WHERE THE WAAL FLOWS

Once upon a time Nijmegen stopped at the Waalkade. But with the new city island and the development of Nijmegen-Noord, the river is increasingly becoming part of the city. And the houses in this area are popular.

Text: Mathijs Noij Photos: Paul Rapp and Erik van 't Hullenaar



hen Dave Willems looks out of his kitchen window, he sees a long line of ships continuously sailing past on one of the busiest waterways in Europe. The Radboud Reflects cultural programmer lives in one of the new houses in Batavia, the nearly completed neighbourhood between the Weurtseweg and the Waal.

This open view of the river is temporary by the way: right in front of Willems' house, the land is being prepared for a large apartment complex. On the building site, the iron framework for the foundations has already been put in place. "But we knew this when we bought the house," he says.

After obtaining a Bachelor's in Engineering in Eindhoven, Willems (35) came to Nijmegen to complete a Master's in Philosophy. He's worked as cultural programmer for Radboud Reflects for 4 years. Like many young couples, two years ago he and his girlfriend began to look for a house in the overcrowded Nijmegen housing market.

The most important thing was that their new home should not be too far from the city centre. The fact that they ended up in a neighbourhood along the river was an added advantage. "Although in my experience, the Waal was always nearby," says Willems. "Even when we lived in an apartment near Central Station."

"I often go jogging across the city island. It's a completely different experience to running through the city. The streets feel like visual tunnels, with lots of obstacles, but when you run along the river, the landscape glides past much more slowly. The panoramic view has a calming effect."

Five cars a day

The neighbourhoods along the Waal – both on Waalfront to the West of the city centre and on the other side of the river – have really grown in popularity in recent



Dave Willems lives in Batavia

'I OFTEN GO JOGGING ACROSS THE **CITY ISLAND**'



Lotte Krabbenborg lives in Lent



'MY SON'S FIRST WORD WAS **BOAT**'

years. And yet moving to the Northern shore of the Waal was not Willems' first choice. "The river becomes a barrier to going into the city. Lent also has a completely different atmosphere – it's a village surrounded by VINEX suburbs. I'd really miss the dynamic of the city."

Lotte Krabbenborg (39) doesn't deny that Lent lacks the urban feel. But whereas Willems sees this as a disadvantage, Krabbenborg is happy with the quiet and the space across the Waal. Two years ago, the sociologist and her family exchanged their home on the busy Groenestraat for a large detached house in the old part of Lent. "If you see five cars drive by in the street, it's a busy day. It's great for the children."

Krabbenborg doesn't see the Waal as a barrier. On foot, it takes her half an hour to get to town, where her oldest son goes to school. The river does mark a separation between her work and private life. "After a day at the University, I enjoy cycling home across the windy Waalbrug. It helps me clear my head." The work on the bridge makes the crossing even more dynamic – there's so much to see. Her son



HOW NIJMEGEN GREW ALONG THE SHORES OF THE WAAL

It's not very surprising that the Romans chose the current location of Nijmegen to build a settlement in the 1st century BC. Dolly Verhoeven, Professor of the History of Gelderland: "The river made it possible to transport troops and provisions, and the hill offered safety." With an eye to the muchdesired invasion of Germania. which never materialised. Niimegen became a military base camp. During the Batavian Revolt (69-70), the Batavian Roman settlement on the Valkhof was burned to the ground, following which the Romans build a new city to the West of the previous settlement.

"On the current location of the Honig factory we found temples and baths from that period." In the Middle Ages, the city once again shifted towards its present-day centre, and in the thirteenth century, walls were built around it. "The inhabitants, including many skippers and merchants, greatly profited from the Waal as a transport route," says Verhoeven. "Trade took off, both towards Cologne, and towards the West and the North." At first the city walls, later replaced by ramparts, offered safety, but in following centuries they were increasingly experienced as an obstacle. "The population grew and the city became overcrowded. Those who could afford it moved away from the stinking city with its river that was like an open sewer." It was only in 1874 that the

ramparts were demolished and Nijmegen was able to expand. This was also the time when the City on the Waal acquired bridges: first a railway bridge and then, in 1936, a road bridge. "But the impoverishment of the Benedenstad on the Waal continued nevertheless. The neighbourhood was spared during World War II, only to be largely demolished and

renovated afterwards." For a long time the Benedenstad was a desolate place, and it was only in the 1970s that new buildings appeared and the area once again became attractive to live in. "Even though it's a pity so many old buildings were demolished." The historian is happy to see that the other side of the Waal is once again becoming part of the city. "For centuries, the two shores were only connected by a chain ferry. The railway bridge and the road bridge were a great step forward. Thanks to the new bridge and the development around the Waal, the city is really flourishing."

enjoys looking at the river as they cycle: "His first word was 'boat'."

Krabbenborg lives in the heart of Nijmegen-Noord, also known as the Waalsprong, where the Municipality is planning a lot more construction in coming years, to meet the high demand for housing. At the moment the district has a little fewer than 7000 houses, with another 5000 planned over the next ten years. The Municipality is looking for options to increase this figure even further.

Krabbenborg hasn't studied these expansion plans very carefully. "But I hope there'll be enough open space left. My son learned to cycle on an open field next to the railway bridge. I heard that the Municipality is planning to build a five-storey apartment block there."

Biodiversity

Krabbenborg's concerns are shared by many Lent inhabitants. If you look at the future map of 'Noord', you get the impression that the entire area will soon be built up, from the Waal beaches to Oosterhout and from the Oversteek bridge to the Zandse Plas.

This is partially true, admits Mathieu Schouten. As project leader, he works on behalf of the Municipality on the future vision for Nijmegen. "Nijmegen-Noord will largely be a residential area. But with more emphasis on its environmental value than in the past. These will be urban areas with mixed use, including nature, habitation, work and other facilities." Green areas are also included in the Hof van Holland, with its shops and facilities, intended to become the centre of Nijmegen-Noord.

"This all used to be agricultural land," says Schouten. "We now know that there is more biodiversity in cities than in modern agricultural areas. And we want to stimulate this, for example by providing nesting areas for birds." Schouten points to the blue belt surrounding Lent, with the Oosterhout's Plas, Lentse Plas and Zandse Plas. "These natural areas must be protected."

Then there is, of course, the 'fantastic open space' offered by the river park, says Schouten. "For years, the river was seen as an obstacle – and a cultural boundary between the Catholic South and the Protestant North. But we're now crossing this boundary in all kinds of different ways, by creating an island feeling and by inviting other parties to organise events that are interesting to all city dwellers, like the Four Days Marches."

Even though people in the city are sometimes disparaging about the northern shore of the Waal – 'You can get used to anything except Lent' – Schouten doesn't think Nijmegen-Noord has an image problem. "The only people who say that are those who don't live here." *****



'Gezicht op de Waal en de Valkhofburcht' by Jan van Goyen, 1641 (Valkhofmuseum collection)

Lucy's law

Lucienne van der Geld is a lecturer of notarial law and director of Network Notarissen.

COLUMN

Floating villa

The average adult is 55 to 60% water. A cucumber is 95% water. What about the Netherlands? In terms of surface area, the Netherlands is 18.4% water. So why don't we build more on the water? Some areas in the Netherlands are experiencing acute housing shortages. You'd think there'd be plenty of space on the water. Plus, a floating home can be energy-neutral, and you can move it if you need to. In fact, if the water rises, landbased houses will flood, but floating homes will simply rise with the water. So when Rutger Bregman's 'Het water komt' (The water is coming) scenario comes to pass, the best place to be will be in a floating house.

But living on the water is not so simple from a legal perspective. The water on which you want to build must be deemed suitable for construction and not be part of a commercial shipping route. The municipality must be able and willing to grant water inhabitants a permanent housing permit. And imagine the discussion about whether a floating home is 'moveable' or 'immovable' property. This has consequences for lots of things: how can you become the owner of a floating villa, whether you can get a mortgage, and what about taxes? This is why people advocate for more attention for the legal underpinnings of floating homes in the Civil Code

In the meantime, pioneers create the most beautiful floating constructions. A floating home tends to bring to mind decaying Amsterdam houseboats with self-crochet hammocks. Or the Wietboot in Utrecht. But it doesn't have to look like this. There are some amazing super de-luxe floating villas out there! And what about the cucumber in the second sentence of this column? Since it doesn't have anything to do with the rest of this story, I'll just let it be what it is. Wet!



'GOING FAST **ON THE ICE** IS THE BEST THING EVER'



Water can be very soothing. Under water there is complete silence, above water you hear the nature around you. Water – in its fluid or solid form – is the ultimate place for exercise.

Text: Julia Vosmeijer / Photo: Duncan de Fey

IRIS WILLEMSEN (23) COMMUNICATION SCIENCE

"When I first discovered skating on the ice rink in Deventer, I was nine years old. I now skate at a relatively high level. I'm a member of Lacustris, a really great student skating association. I also train with another team and I take part in races at weekends. Going fast on the ice is the best thing ever. You have to make sure everything is right: your technique, your timing and your strength. My favourite is speed skating, although ice hockey also sounds great and I'd love to try it. Figure skating doesn't appeal to me much - I don't have the elegance it requires. I enjoy watching skating races, for example during the Olympic Games. I get up early to make sure I don't miss anything. I don't know whether I'll ever reach this kind of level, but I still really enjoy it. Sometimes I teach skating to international students from warmer countries. It's really fun to introduce them to such a traditional Dutch sport."

RENTING A ROOM IN A NEIGHBOURHOOD

The Waterkwartier in Nijmegen-West is a real working-class neighbourhood. No student enclaves of the kind you find in Bottendaal or Oost, but lots of Nijmegen citizens in tracksuit bottoms.

Text: Joep Dorna / Photos: Bert Beelen



TIM METHORST (19) STUDIES PHYSICS AT HAN UNIVERSITY OF APPLIED SCIENCES LIVES IN THE WATERSTRAAT

"I've lived in the Waterkwartier for about two and a half years. I know many people think it has a bad reputation, but I don't really understand why. I don't see any criminal activities and the neighbourhood is very quiet. The other day my street did make the news, because someone drove through it at 100 km per hour. Also, a couple of months ago, police agents were patrolling the neighbourhood after a shooting. It sounds bad, but I personally didn't notice anything. I don't talk with the neighbours much. I don't make much of an effort either, because I'm busy enough as it is. I want to be careful not to sound prejudiced, but there are lots of Tokkie-like people here, who sit in their front gardens in their tracksuit bottoms. In summer, they sit there all day, smoking and talking. You have to wonder: do they have a job or do they live on benefits? Some local residents think there are too many student houses here. I can imagine people are driven crazy by student houses where students come home drunk in the middle of the night and leave their bicycles lying all over the place. Our house is quiet; we only have a party once a year. I don't think our neighbours mind us. I do have contact with one of them, an old lady. For my studies, I'll soon be spending four months teaching in Nepal. When I come back, I'll go back to living in the Waterkwartier. I think it's a great place to live."

WORKING-CLASS



EVA JONGSMA (25) STUDIED SPATIAL PLANNING (RECENTLY GRADUATED) LIVES IN THE VOORSTADSLAAN

"I moved to the Waterkwartier last summer. When I first moved in, I found the neighbourhood very quiet. I used to live in the centre, above Café TweeKeerBellen. There was always something happening there, but here you don't hear anything. So far I think it's a very nice neighbourhood. The location is great: I can get to the centre or the station in five minutes. It's quite a long way to cycle to Radboud University, though, and a bit of a climb. This neighbourhood is very low lying, but there isn't much you can do about that. My Spatial Planning studies has given me a different perspective on the neighbourhood. Rundown houses are interspersed with very beautiful houses where young people live. I also feel that neighbours actually know each other here. It's true though that the neighbourhood can look really dirty sometimes. There are lots of antisocial people who speed through the streets and dump their rubbish everywhere. That kind of thing doesn't happen in Oost. Why? Maybe the people who do it don't feel really connected to the neighbourhood so they don't care about litter in the street.

And there isn't as much nuisance as you'd expect. Before I moved to Nijmegen, I lived in Rotterdam-Zuid, in Feijenoord. It was a highly problematic neighbourhood, where criminality was sometimes clearly visible on the street. Still, I lived there happily for two years. At the time I thought: if I can be happy here, I should be able to manage it in the Waterkwartier. The only thing is that my landlord isn't very nice, but that could happen anywhere."

TAP WATER FROM THE UNIVERSITY'S BACKYARD

When you take a mouthful of tap water at Radboud University, you're drinking water from Heumensoord. The woodland and heath area adjoining the Campus is a source of this water, supplying 150,000 people in Nijmegen and surrounding municipalities every day.

Text: Ken Lambeets / Photos: Tom Hessels

How much of the water extraction operation in Heumensoord is visible?

Heumensoord is a five hundred hectare woodland and heath area. Many people in and around Nijmegen walk their dogs there every day among the pines, beech and rhododendrons. The water extraction operation is nearly invisible, which is exactly the intention. If you look carefully, you will see large square metal covers at various places in the forest. Under these are securely sealed and protected wells.

Under the covers are cellars, two metres deep, containing a pipe that brings the water up from the ground, makes a 90° turn, and transports it towards the pumping station located on the edge of Heumensoord.

How deep is the pumped water?

The groundwater under Heumensoord is located twenty metres below ground level. The water pumped in the forest is phreatic groundwater: the first layer of water you run into when digging a vertical well. In the case of Heumensoord, this is rainwater that seeps through the ground until it reaches the phreatic groundwater layer. From there it flows to the drinking water wells or surrounding surface water like the Maas-Waal canal. "We have a licence to extract 10 million m³ of water per year from the Heumensoord forest," says Van Kessel. "In the past year, we extracted 9.2 million m³ of groundwater. This required some forty water extraction wells."

HALF THE WATER WE PUMP UP IS A MAXIMUM OF 25 YEARS OLD

How old is the tap water?

The age of our drinking water depends on the speed with which rainwater seeps through the ground. An example: in some places in Heumensoord there are signs saying 'groundwater protection area'. The rainwater that falls in these areas takes approximately 25 years to reach the wells. "Half the water we pump comes from this area, so it's a maximum of 25 years old," says Van Kessel.

Groundwater also flows into the wells from outside the groundwater protection area. The groundwater from this area is between one hundred and four hundred years old.

Can the pumped water ever run out?

No, that's impossible. In Heumensoord, 3000 m³ of rainwater falls per hectare every year. This water flows to lower surrounding areas, and then via canals, ponds and rivers, ultimately to the sea. The water pumped by Vitens is removed from this cycle and supplied to clients. "Once they've used it, it flows to the sewer, and from there to the river and ultimately the sea."

So pumping water means less water in nature. "These interests are taken into consideration when applying for a licence to pump water," says Van Kessel. "It changes the balance, the rainwater doesn't run out, but there's a bigger impact on the environment."

Is the pumped water filtered?

Rainwater seeping through the ground absorbs all kinds of substances, like iron and manganese. The Heumensoord water is also naturally acidic, which is not good for pipes and kitchen appliances. These substances are removed from the water through sand filters and by airing the water. Van Kessel: "We do this with filtration tanks in the production building located at the edge of the forest. There, the water also flows over marble grains to absorb some calcium, which deacidifies it."

How does the water end up in our taps?

The amount of water supplied by Vitens depends on the number of people who turn on their taps. This varies from day to day and hour to hour. Especially in spring and summer people use lots of water, and on working days most people take a shower sometime between 7 and 8 am. Vitens must at all times be able to deliver

a little more water than needed on a 'maximum day' (the day on which clients use most water, Eds.). This is why they also store a large quantity of clean water in a number of cellars. "If we were all to turn on all our taps at the same time, some of the water would come directly from the production process and some from the cellars," says Van Kessel. At night, when fewer people use water, the cellars are once again pumped full of water.

After the pumping station and the cellars, the water is carried through a number of large transport pipes and many small, narrow pipes into people's homes. In the five Dutch provinces where Vitens is active, there are nearly fifty thousand kilometres of underground pipes – more than the Earth's circumference.

There is a shooting range at Heumensoord. During the Four Days Marches, soldiers set up tent camps in the forest, and from September 2015 until April 2016, it was home to three thousand refugees. Is none of this a problem for water extraction?

Extensive activity in the water extraction area can indeed be a problem. The military tent camps are located in an area where water flows to the pumping wells at a very fast rate. In principle, only activities related to drinking water extraction are allowed there, but the provincial government makes an exception for these parties. Vitens always enters into dialogue with parties who come in the vicinity of the wells. "Luckily everyone wants safe drinking water," says Van Kessel. "Together with the Province and the parties involved, we consider what additional measures are needed to prevent the water from becoming contaminated with bacteria or chemicals." Working with fuel is dangerous, for example, so all energy should ideally come from the power grid or protected generators. In the area surrounding the pumping wells, it's essential that no dangerous substances leach into the ground, such as heating oil from old tanks. "For every human activity, we look at the consequences for the groundwater," says Van Kessel, "Normally, the soil is sufficiently protected against bacteriological pollution. But once you start digging holes, that's no longer the case. This is why Vitens asks everybody - even hikers - to be vigilant and report any suspicious activity in the forest."

What is the quality of the Heumensoord water?

"The water being pumped in Heumensoord is of good quality," says Fons Smolders, Professor by Special Appointment in Applied Biochemistry at Radboud University and senior project leader at research centre B-Ware.

What is striking is that the concentration of nitrate in the water is relatively high, though still well within the norm for European drinking water. "This is due to the fact that coniferous forests capture a relatively high amount of atmospheric nitrogen in the trees' needles," he says. "When it rains, the nitrogen, together with rainwater, washes as nitrate into the groundwater. Although nitrogen deposition onto a solid surface has decreased since the 1980s, it's still far too high. Luckily nitrate isn't dangerous for people, especially not in such relatively small quantities."

For the natural world, it's a different matter. Nitrate concentrations like those measured in Heumensoord can lead to severe problems in natural areas supplied with this groundwater. Incidentally, nitrate in the groundwater doesn't just come from forests. Agricultural land also leaches too much nitrate.

'EVERYONE WANTS SAFE DRINKING WATER

Do we use too much water?

Water usage hasn't really increased over the past twenty years, but Vitens observes a shift in the last few years. "People once again enjoy taking long showers," says Van Kessel. "What's more, half the water we use is heated. Water conservation is not only important because of the water, but also because of the energy required. That's why we ask people to use drinking water sparingly, especially when showering or using the washing machine."

Research in the 1990s showed that student houses used a lot more water than an average family. "This is probably due to the showering culture," says Van Kessel. *****



DOES THE DRINKING WATER IN THE HUYGENS BUILDING REALLY COME FROM HEUMENSOORD?

To test this, researcher Sebastian Krosse from research centre B-Ware compared a sample of tap water with the minimum and maximum values of water coming out of the Heumensoord drinking water station in 2019. "There's only one possible conclusion," says Krosse. "The drinking water in the Huygens building is in fact very similar to the Heumensoord water."

	Drinking water Huygens building*	Water leaving Heumensoord**		LEGAL NORM
		min	max	Z
рН	7.6	7.6	7.9	MIN 7.0 - MAX
Bicarbonate	1796	1656	2344	MIN 984
Carbon dioxide	106	54	155	
Chloride	755	705	817	MAX 4231
Sulphate	434	457	509	MAX 1561
Sodium	725	687	778	MAX 6624
Calcium	1274	1195	1501	
Magnesium	259	221	322	
Potassium	49	65	77	
Silicon	206	206	207	
Nitrate	307	230	316	MAX 806
Ammonium	0.19	<1.7	<1.7	
Phosphate	<0.1	<1	<1	
Iron	0.12	<0.18	0.36	

* Analysed using the joint instruments of the Faculty of Science

** Data from VITENS laboratory (Leeuwarden)





Water can be very soothing. Under water there is complete silence, above water you hear the nature around you. Water – in its fluid or solid form – is the ultimate place for exercise.

Text: Bregje van de Weijer / Photo: Duncan de Fey

SOPHIE TOOTEN (22) MEDICINE

"When I first heard someone mention competition rowing I thought: What kind of crazy people train eight to ten times a week? But I discovered I really enjoy rowing and I'm good at it. After a selection round, I started taking part in competition rowing in my second year. I'm now in my fourth year, and I have to set some priorities. My studies come first, then rowing, and then everything else. During the racing season, I can't always go to my parents at the weekend. My friends and family have to understand this.

Rowing combines a number of elements. It's both an endurance and a strength sport. We don't just train on the boat; we also do spinning and train on land. There's also an important mental aspect to it. You have to push yourself further than your body can handle at first and really explore your physical limits. Since rowing is a real student sport, everyone starts at the same level, and that little bit of extra effort can make all the difference. It's very guiet on the water. You're acutely aware of the surrounding nature. Another advantage is that I notice I have lots more energy and discipline because I train so much. Since the end of my year as a board member for Phocas, which meant me spending a lot of time on shore, I can feel I'm getting a lot fitter again."



Climate scientist Heleen de Coninck (43) lives on a house boat in the Ooijpolder with her husband and daughter (3).

Text: Stan van Pelt / Photo: Bert Beelen

ABOUT LIVING ON

THE RIVER IS THAT

YOU LIVE IN

RHYTHM WITH

THE WATER LEVEL

o be honest my husband and I weren't really into boats – we didn't even have a sailing license. But we did want to live outside the city. We found this boat by accident, it just showed up on Funda. It's in an ideal location, only 15 minutes cycling from the city. Especially in winter, I feel

such a calm settle over me as I cycle over the Ooij. Sometimes, we see kingfishers right outside our window. It's so different from the small Amsterdam apartment we used to live in. We're not planning to leave own time scorp, own though I

in. We're not planning to leave any time soon, even though I now work four days a week as a Professor in Eindhoven.

Our boat is a 1928 inland barge from Veendam; it was used to transport grain, among other things. Now the hold is our living room and kitchen. The hold – behind the wheelhouse – is our bedroom, and our daughter's bedroom is at the front. It was a really difficult job

to get it all to fit: there isn't a single straight corner on board. We were lucky to find a good carpenter who could deliver custom-work, like those angled plates against the inner wall – they really emphasise the boat's shape.

Altogether, we have approximately 90 m2 of living space. It's enough for us, especially since we have an additional 1100 m2, the plot of land where the boat is moored. There's even a small bicycle shed.

We try to live as sustainably as possible. We have solar panels and a solar boiler. We heat the rooms with a pellet stove, which is better than the wooden stoves on most house boats. Our bathroom is connected to the sewage system on shore, and our electricity also comes from the shore.

The nice thing about living on the river is that you live in rhythm with the water level. This makes you very aware of how changeable the natural environment is. At the moment, the water level is quite low – the boat wouldn't even be able to sail out of the side channel

> of the Waal, where we are moored. The gangway from the shore now slopes so steeply down, I think the incline may be as much as five metres. And the view is quite limited at the moment - we can't even see over the dikes.

It was very different during the floods two years ago. Then only a tiny slice of dike separated us from the Waal. We need floods now and then, because the boat has to be inspected every seven years,

for insurance reasons. This means it has to be taken to a boatyard in the Maas-Waal Canal. Towed, actually, since the engine hasn't been switched on in forty years. When we bought it, we had the bottom completely replaced, which took two weeks.

We then found out we had a problem: the water level had dropped so much that the boat didn't fit into our small side channel any more. So we were moored for six months in the Waalhaven near the Honig factory, among the real skippers." *****



NOT BEING ABLE TO SWIM



People who learn to swim at a later age have to learn to trust the water, says Syrian student Muhammad, speaking from experience. The Dutch Annika Eskes hasn't yet reached that stage. 'I never put my head under the shower; I'm so used to avoiding water.'

Text: Antonia Leise / Photo: Duncan de Fey



n the Nijmegen Erica Terpstra swimming pool the demand for swimming lessons – for adults, mind you – is so high that instructor Claudia Bouwman has a waiting list. You'd think everyone would have learned to swim as a child, but that's not the case. Muhammad Salibi (28), a Syrian Computer Science student at Radboud University, has been taking up swimming lessons for the first time in his life. He's decided to face the water after moving to the Netherlands.

On this Thursday night, he's in the swimming pool with Bouwman. Some of the other students are already diving for rings in the shallow pool, others are still getting used to floating. According to Bouwman it

According to Bouwman it takes approximately one year for an adult to be ready to move from the shallow pool to the 1.80-metre-deep pool where the more advanced swimmers practise.

The swimming instructor likes working with adults because they're keen to learn to swim. "They're very motivated."

Salibi decided to take lessons because he had the feeling he

was missing out on fun things in the Netherlands. He'd like to try his hand at a variety of water sports.

Fear of water

Motivation is not the only crucial element if you want to learn to swim: logic and emotion are at least as important. These are the two things that make learning to swim so fundamentally different for adults as compared to children, says Bouwman. "Explain to adults the logic and technique of swimming, and they immediately understand what you mean." She believes this is why it's easier to teach an adult how to swim opposed to a child.

However, for grown-ups, the real challenge is overcoming their emotions. Bouwman refers to the feelings associated with years of avoiding water. Although fear of water and not being able to swim often go hand in hand, fear of water is not necessarily the reason a person can't swim. In some cases, it's the other way around: not being able to swim leads to avoidance, which ultimately results in fear of water.

Chlorine

LEARNED TO

SWIM WHEN

SHE WAS

THIRTY-

SOMETHING

"I actually think it's easier to learn to swim when you're younger," says twenty-year-old student Annika Eskes. Being allergic to chlorine, she never learnt to swim as a child. Now, she has a hard time catching up. "I think I've outgrown the chlorine allergy. But I'm so used to

> avoiding water that I'm still not particularly motivated to learn to swim."

Eskes didn't sign up for swimming lessons, nor is she planning to do so in the near future. On the one hand because of the time investment, she says, but also because avoiding water is a difficult habit to break. "I never put my head entirely under the shower because I'm so used to avoiding water. My aunt only learned to swim when she was thirty-something, so maybe

there's still hope for me (she laughs)."

Salibi has similar experiences when it comes to avoiding water. "I wasn't particularly afraid of it," he says. "But because I couldn't swim, I did learn to avoid water as much as possible." His biggest challenge during swimming lessons is to learn to trust the water.

The logic behind a skill may be easy to grasp, but the fear that it triggers is much harder to suppress. And yet, Bouwman sees incredible progress from her pupils. Some of those who were very afraid of water a week ago are now really going for it.

In the end, says the swimming instructor, it all boils down to one thing. "You have to tell the students nothing bad will happen to them," she says. "And then they have to tell themselves the same." *

ARTS AND CULTURE

SUPPORT OF SUPPORT OF

IN (AND AROUND) NIJMEGEN

Are you a real water rat, or do you feel more comfortable on dry land? Either way, the Nijmegen region has lots of water fun to offer! Especially for this water-themed edition, *Vox* has selected six activities.

Text: Tjitse Ozinga / Illustration: Getty Images



ESCAPE ROOM UNDER WATER

The escape room, a phenomenon unheard of a decade ago, is now all the rage. So much so, in fact, that it is nearly a cliché. These days, if you want a truly exceptional experience, you have to look further. Or rather deeper. Escape room Aquaville, of diving association De Kaaiman, is located a scary 18 metres below water level! This makes Aquaville unique worldwide. All you need now is your diving certificate!



WATER SKIING IN WIJCHEN

If you prefer to remain above water, try water skiing at the Berendonck in Wijchen. It takes some practice, but is certainly worth the effort. Allow yourself be pulled across the lake, or even try your hand at a few stunts. Or come and look how others do all the dangerous work. As with snow, some water sports enthusiasts prefer boards to skis. No problem, the Berendonck also offers facilities for wakeboarding. And if you prefer something a little calmer, you can give kayaking or raft building a go.



TAKE A BOAT TRIP ON THE WAAL

What could be a more iconic image for Nijmegen than the beautiful view of the city from the Waal? All year round, boats large and small ply up and down the river. You are probably already familiar with the pancake boat, where you can eat while watching the glorious scenery glide by. But there are lots of boat trips on offer on the Waal, Maas and Lower Rhine. In Arnhem, you can even book an impressive river safari. And if you're looking for something really spectacular, cross your fingers that Drift op de Boot once again makes an appearance during the Four Day Marches.



ICE SKATING AT TRIAVIUM

Skating rink Triavium in Dukenburg is open every day, and welcomes all visitors, whether weak-kneed at the prospect of taking to the ice or an experienced skater in possession of an Eleven Cities Cross. If you have a student sports pass, you can take a skating course. It's also possible to make a reservation for large groups, so get your roommates or association members enthusiastic about some invigorating exercise! The winter doesn't last forever, though, and the ice will soon melt into water, so don't wait too long! The skating rink is open until mid-March.



NETHERLANDS WATER MUSEUM

Since 2004, Arnhem has been home to the Netherlands Water Museum, an interactive museum that explores all aspects of water. How do we make drinking water? And how much water do you use on a daily basis? From dike management to groundwater, the museum covers it all. The Water Museum, located in a historical building in city park Sonsbeek, has lots of interactive activities and is suitable for visitors of all ages.



SUPPING AND SURFING ON THE LENTSE PLAS

Originally from Hawaii, supping is slowly conquering the Dutch waters. 'Supping' stands for 'stand-up paddling': standing on a board and propelling yourself across the water with a paddle. The ideal beginner-friendly activity for water sports enthusiasts. Just imagine paddling with the Waalbrug and the setting sun in the background? Join us at Sup & Surf – where, as the name indicates, you can also learn windsurfing.

POEM

A source

Mama orca doesn't want to let me go Yet she must, it is time. I drift I sink slowly downwards Soon I am no longer alone, Fish darting here and there, filling their bellies with my blubber. It's dark now. Then I land on the bottom, I barely feel it. Hagfish, crayfish, small sharks feed. This deep down, there's no right and wrong, only opportunism. After a year and a half I'm nothing more than bones and a longing to once again feel the warmth of the sun.

MELISSA KETELAAR IS THIS YEAR'S CAMPUS POET. SHE WRITES A POEM FOR EVERY EDITION OF VOX.

COLOPHON

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GENERAL

29 FEBRUARY, 1 p.m. Gregorian Chant Workshop. Join the Schola Cantorum Karolus Magnus singers and their conductor Stan Hollaardt to bring back to life the ancient musical tradition of Gregorian Chant. No singing experience or note-reading skills required, nor do you have to speak Dutch. Although Gregorian Chant was traditionally performed by men, the workshop is open to men and women alike. Location: Student Chaplaincy. **3 MARCH,** 7 p.m. Find your Ikigai. Why do you get out of bed in the morning? This interactive workshop shows that life doesn't have to be so complicated. Escape from the rat race for a short while and discover this Japanese philosophy, which teaches that a long, healthy and happy life is founded on four basic principles. Participation is free of charge. Location: Student Chaplaincy.

7 MARCH, 8 p.m. Nijmegen Book Festival. Literature lovers take note! The theme of this fourteenth edition of the Book Festival is 'rebels and cross-thinkers'. Expect indepth philosophical and scientific lectures from exceptional upcoming talent and well-known names, including journalist and anthropologist Joris Luyendijk. And, of course, there'll be time for a great party! Location: De Vereeniging.

Radboud Reflects

10 MARCH, 7.30 p.m. Is dyslexia a disorder? Dyslexia has turned into a disturbing earnings model, says educational pedagogist Anna Bosman. The fact that a child has reading difficulties doesn't mean they suffer from a disorder. Bosman pleads for better education, to ensure that everyone leaves primary school with a good language level, and that there is no need for expensive tutoring from dyslexia agencies. Location: Lecture Hall Complex.

17 MARCH, 8 p.m. Joan of Arc: Heroin, witch or saint? Everyone loves Joan of Arc. Since her death at the stake in 1431, she's exerted an irresistible pull on people. Some women claimed to be Joan of Arc, and both Nazis and left-wing politicians and feminists used her to promote their ideological agenda.

Marit Willemsen



PERSONNEL

3 MARCH, 7.30 p.m. Workshop: Create your own 'Herman Brood'! Herman Brood wasn't just a musician, but also an original painter. In this workshop, teacher of visual arts Marloes Heemskerk demonstrates how to work with the techniques used by Brood, from spray cans to screen printing. Create a beautiful result step by step! Location: Villa Oud Heyendael. **11 MARCH**, 7.30 p.m. Pub Quiz. Are you brimming with factual knowledge and competitive by nature? Come and take part in the Pub Quiz of the personnel association. Together with your team, you will compete with other teams for the highly coveted main prize. Register at www.ru.nl/pv. Location: Cultuurcafé. Make your own Herman Brood



18 MARCH, 8.30 p.m. The Bentleys - To Liverpool and Back. With their sound, atmosphere and swing, the five energetic musicians of The Bentleys will take you back in time. Interspersed with fascinating anecdotes, they pay tribute to the music of artists such as Ray Charles, Jerry Lee Lewis, The Beatles, and The Rolling Stones. Whenever you were born, the 1950s and 1960s hits will be a walk down memory lane! Location: Cardo Theatre, Groesbeek.

CULTURE ON CAMPUS

20 FEBRUARY, 7.30 p.m. The Lobster. Yiorgos Lanthimos made a film about a dystopian society, in which single people have 45 days to find a partner. If they fail, they are turned into an animal. *The Lobster* is a black comedy interspersed with drama and romance with a special twist. Location: Theater C.

2 MARCH, 5 p.m. Lustrum Kick-off. Culture on Campus celebrates its 25th anniversary. To mark this occasion we are organising a number of festivities, starting with the Kick-off, which includes a tour of all exhibition locations on Campus. For other surprises, keep an eye on our social media! Location: Cultuurcafé.

19 MARCH, 8 p.m. Lustrum RefleXtival. Join us to celebrate a quarter of a century of student life with Culture on Campus. Cultural associations and other artists have come together to create a great line-up. Enjoy a performance by SVN Dance Fever, or dance until the early hours to the beats of brand-new DJ association Soundlab. For the full programme see the social media channels of Culture on Campus. Location: Brebl.

Theologian Daniela Müller and Cultural Science expert Maaike Koffeman explain where this fascination comes from. Location: LUX.

24 MARCH, 7.30 p.m. Mama's last hug. How rich is the emotional life of animals? And what does this say about human emotions? Primatologist Frans de Waal explains how in primates emotions play a key role in politics, conflict resolution and collaboration. Referring to the moving embrace between chimpanzee Mama and her keeper, De Waal argues that there's no fundamental difference between human and animal emotions. Location: De Vereeniging.

26 MARCH, 7.30 p.m. Force of habit. Humans are creatures of habit. Unconsciously we're attached to cultural practices such as social





etiquette, our speech accent, and the clothes we wear. But why? Like norms and values, habits greatly influence our behaviour. This is why we find it difficult to accept major cultural changes. Cognition Philosopher Marc Slors explains why habits have so much impact on how we deal with cultural conflicts. Location: Lecture Hall Complex. 7 APRIL, 7.30 p.m. Lies rule. Fake news, fact-free politics and alternative truths: we lie all the time and take great liberties with the truth. Truth has become a question of perspective and experts are increasingly losing their authority. In her lecture, philosopher and essayist Alicja Gescinska explains why lying has become the norm. Location: Lecture Hall Complex.

