SYNTHESIS

[ˈsɪnθɪsɪs] ~ *noun*

the combination of components or elements to form a connected whole.

~

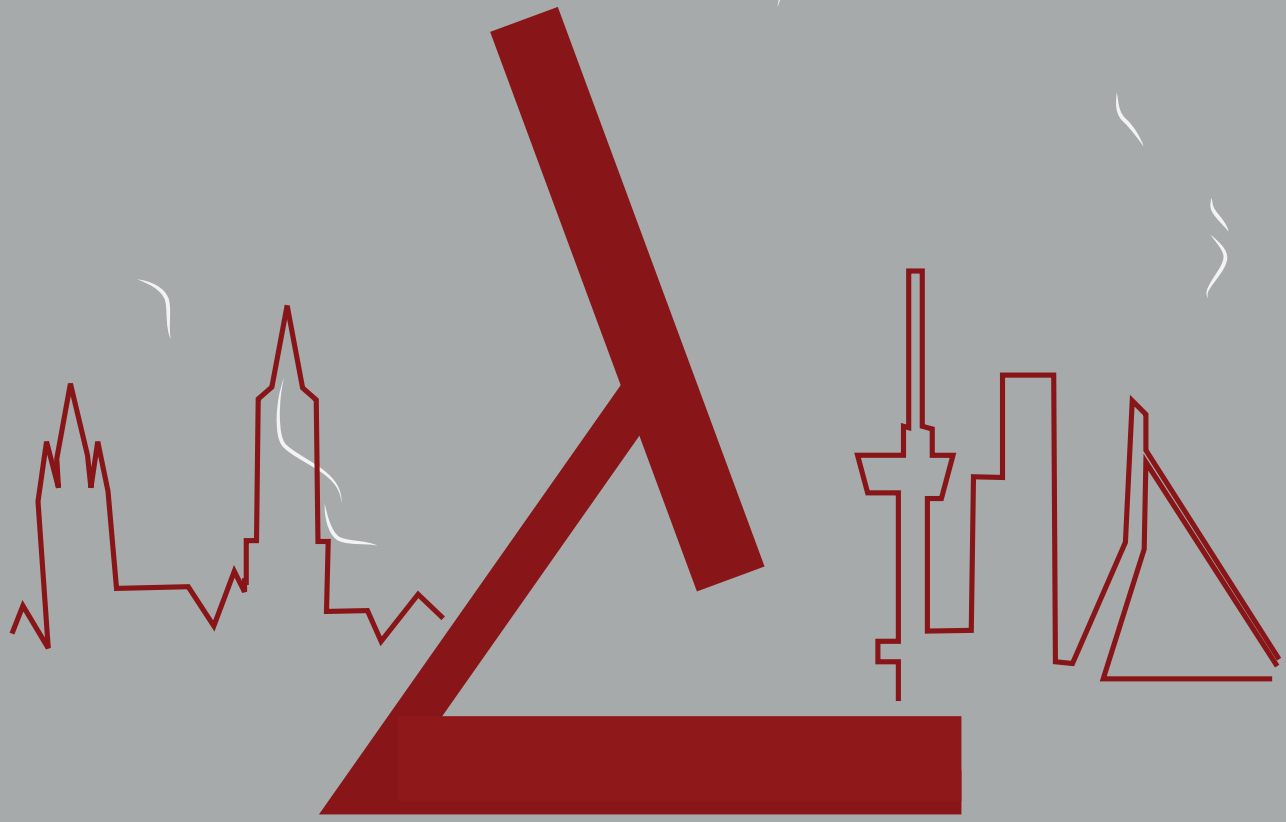
[biology] the creation of an organic compound in a living system, especially aided by enzymes, to establish life.

~

[physics] the conversion of an idea into hardware or a machine in pursuance of observing and understanding the world that surrounds us.

~

[mathematics] the conjoining of mathematical concepts in order to model and interpret observed phenomena.



S.V.N.B. HOOKE

THE NANO SONG

ON ‘THE WILD ROVER’

We zijn de vernieuwing, bezitten die macht.
Allergrootst in het kleinste, is wat ons daar bracht.
Bestaand in Rotterdam en Delft tegelijk,
en we maken je ziektes met de grond gelijk.

Wij zijn Nánó-Bio, scheppen nieuw vakgebied!
Waar we ooit klein begonnen, prijkt nu ’t verschiet!

We muteren de genen van alles wat leeft
en bouwen aan al dat zich in cellen begeeft.
Met eendracht de zaal uit op weg naar het LAB,
waar de beest wordt gevonden, de uil wordt bezat.

Wij zijn Nánó-Bio, scheppen nieuw vakgebied!
Waar we ooit klein begonnen, prijkt nu ’t verschiet!

Nanooooo
Nanooooo
Nano, nano, nanooooo!

ANNA HARTENDORP
PRESIDENT OF S.V.N.B. HOOKE

It is my honour to welcome you in the first lustrumbook of S.V.N.B. Hooke. In this book, the journey of the association is written down. We will look back to the start of the Nanobiology programme, the first days of the association, and our very first Lustrum year.

In 2014, the first board signed the statutes and thereby the study association Nanobiology 'Hooke' was officially founded. The association began to grow and evolve, and increasingly more students got involved. New committees rose from the ground, and a real Nanobiology community started to synthesise. An association like ours is unique in several ways. We are young, small, and fully international, but the most important characteristic of S.V.N.B. Hooke in my opinion is how involved, committed, and innovative our members are. Even during times that we cannot physically be together, Hooke members seem to find a way to connect with each other and they are dedicated to create the inclusive community that we have all experienced, but then online. An association is formed by its members and S.V.N.B. Hooke would not have been the same without the contribution of every single one of them. Therefore, I would like to end by thanking everyone who is or was involved in the association for their effort, enthusiasm, and positive energy.

I wish you a lot of fun going down the memory lane with this lustrumbook as your guide. I have spoken, for the last time.

MARJA VAN BIJSTERVELDT

MAYOR OF DELFT

Something new!

In front of you lies the first five-year anniversary book of the Nanobiology study association Hooke. And that is something new! It fits perfectly with the theme of this book, 'synthesis', since synthesis means nothing more and nothing less than combining heterogeneous things from which something new arises. This is what you did five years ago when you started a club together; something new, and here it is!

Nanobiology is a bachelor's and master's degree at both the TU Delft and the Erasmus Medical Centre. As students, you use physics and maths to understand and research biology at the tiniest scale. I sincerely hope that you will become great scientists who will make discoveries that will contribute to everyone's life and future. Working today on the challenges of tomorrow!

Hooke connects Delft and Rotterdam, speaking of synthesis. As a Delft mayor born in Rotterdam I can only say that it feels right. The connection between Delft and Rotterdam is starting to have more and more substance and your association is a leader in this. More and more often, we look for cooperation in this metropolitan region and every day I notice that we are increasingly starting to understand each other. By connecting ourselves, we will become the smartest part of the Netherlands. But that is nothing new, we already knew that. Now we have to show it!

AHMED ABOUTALEB
MAYOR OF ROTTERDAM

Merging different things into a new whole is a clear explanation of the word synthesis. Synthesis is also the theme of this lustrum book of the study association Nanobiology 'Hooke'. A very fitting theme!

The bachelor and master programme in Nanobiology is a young offshoot of the branch of the exact sciences at the universities of Delft and Rotterdam. Five years ago, the students of this programme founded the fully-fledged study association Nanobiology 'Hooke'. Such an association is a synthesis par excellence, a combination of different characters, backgrounds, and interests, sharing one passion: their studies.

Now, the study association celebrates its fifth anniversary under the name 'Genesis, engineering the future'. That is exactly what these studies are all about: building the future! The promising study programme shows inspiring examples of this, in the combination with medical research or in the development of instruments which offer new possibilities.

I wish the members of the study association Hooke every success with their fascinating studies in Delft and Rotterdam. And, of course, congratulations on the first lustrum, years in which the basis was laid for a long and promising life of the study association.

LUCAS VAN VLIET
DEAN OF APPLIED SCIENCES TU DELFT

In the footsteps of a polymath

Robert Hooke was an eminent scholar and inventor with impact on not just one, but several scientific disciplines. As a physicist by training he went into terra incognito of biological systems with Micrographia, a book in which he shared his observations of the microworld, obtained through a microscope. He coined the term 'cell' for the building block of life. Naming the Nanobiology study association after Hooke sets the level of ambition and illustrates the depth and breadth of those who study life at the nanoscale. It also states that this can best be done through a convergence of disciplines. Besides this, the broad societal impact by Hooke will most certainly also act as a valuable source of inspiration.

Why did TU Delft and Erasmus MC launch a degree programme in Nanobiology? Because we identified its great potential that is best described by quoting Richard Feynman: 'There's plenty of room at the bottom'. These words imply that investigating and manipulating materials at the nanoscale would open a new world of science. This has proven to be particularly true for living matter, the complex machinery of biomolecules comprising cellular processes and communication mechanisms. Inspired by Hooke, today's and future graduates in Nanobiology will undoubtedly make a profound impact on society. I congratulate the study association Hooke with its first lustrum and wish all Nanobiology students a bright future.

HANS VAN LEEUWEN

DEAN OF MEDICAL FACULTY ERASMUS MC

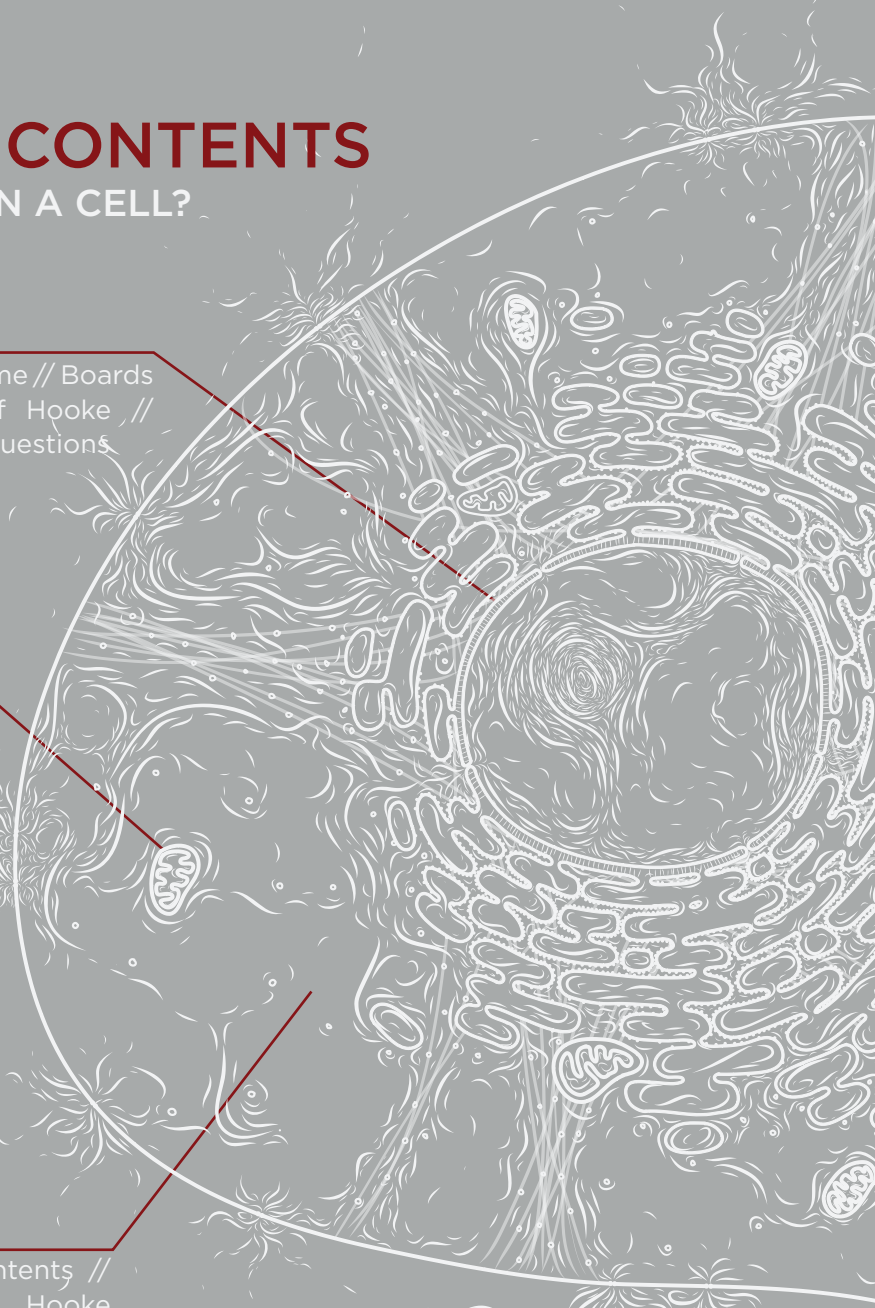
Synthesis. In general, synthesis can be seen as merging dissimilar things into something new. The Nanobiology program can be seen as a wonderful example of this. On the one hand, it is a synthesis between two universities, each with its own disciplines and expertise, which has created a great new program. On the other hand, Nanobiology involves synthesis between the various fields, creating a bridge between physics, nanophysics, biology and medical research. A better example of synthesis can't be given.

However, we are not there yet, the world is changing rapidly, technology is entering all disciplines faster and more and more data is being collected. It will become even more important in the future to stimulate even more synthesis to take place between the various scientific disciplines. In view of the great importance of this and the belief that major innovations lie at the intersection of different disciplines, Erasmus MC - TU Delft and Erasmus University have adopted a convergence strategy, to allow synthesis to take place between all different disciplines.

It is important to converge different disciplines to provide entirely new solutions and enhanced capabilities to address major societal challenges. It starts with people who dare to look beyond their borders, I want to encourage you to do this and continue doing so.

CELL CONTENTS

WHAT'S IN A CELL?



Nucleus

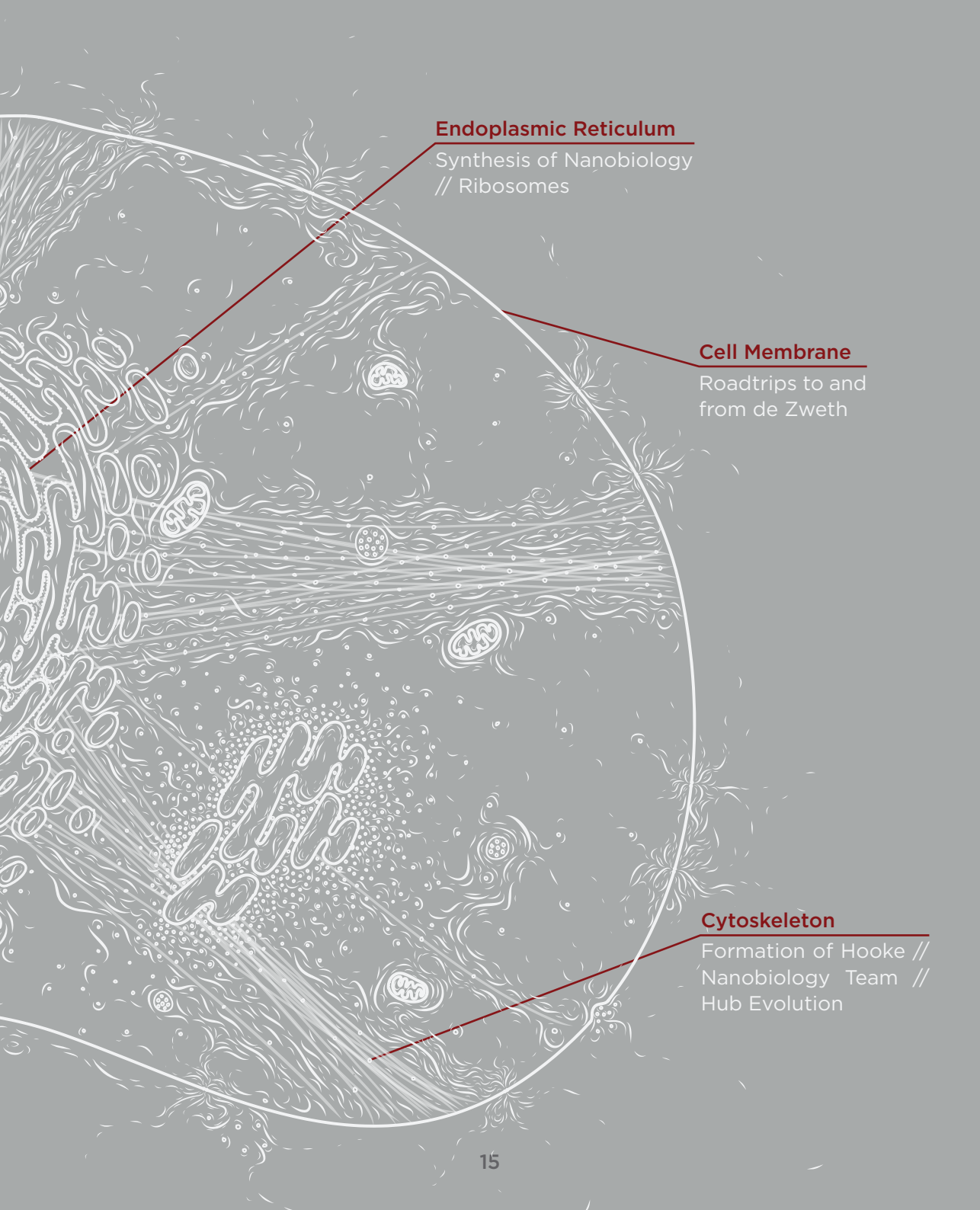
Unfolding Time // Boards // Future of Hooke // Remaining Questions

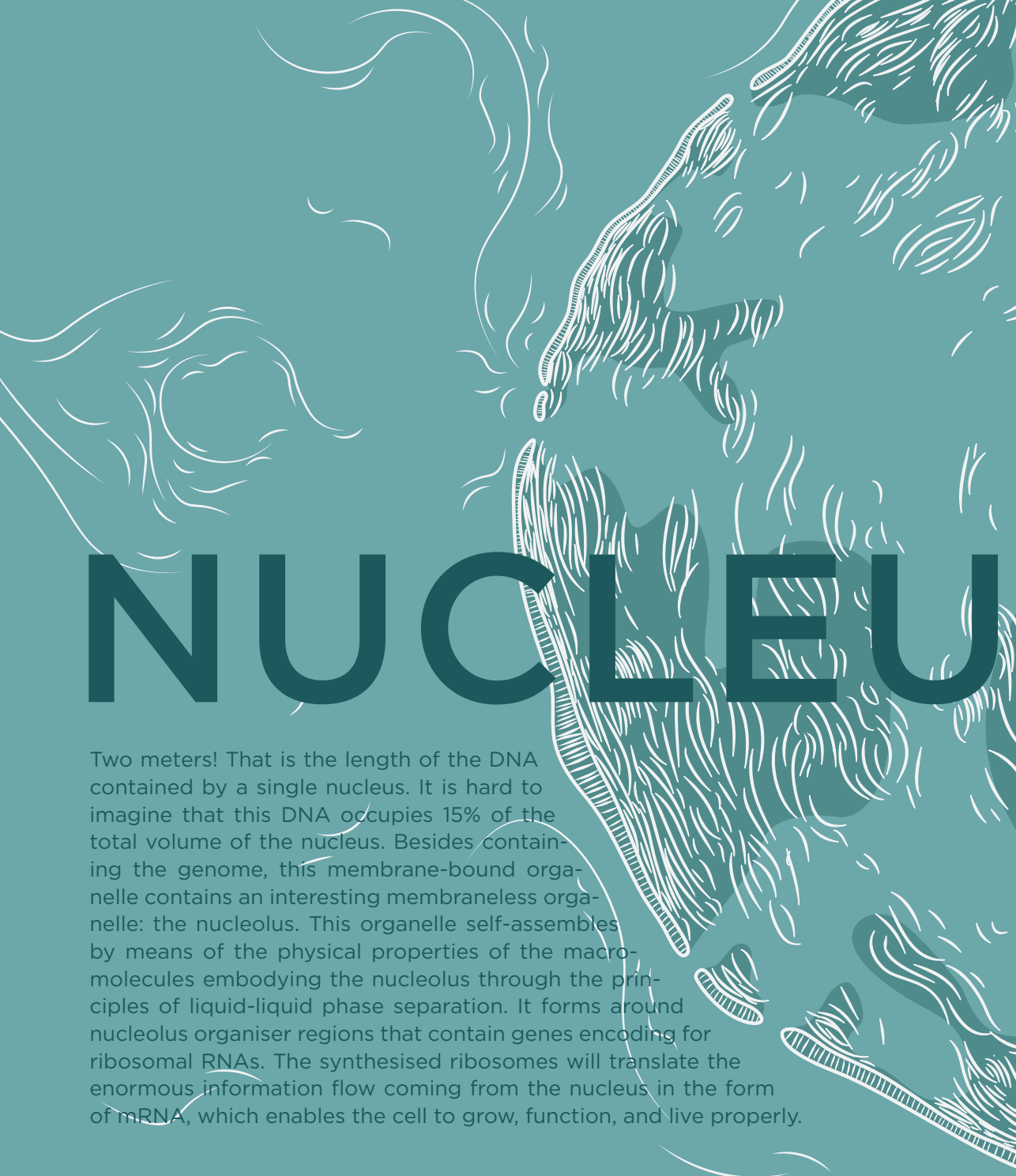
Mitochondrion

Lustrum // Committees

Cytoplasm

Preface // Cell Contents // Photosynthesis // Hooke Quantified // Synthesis Columns // Member Plasmids

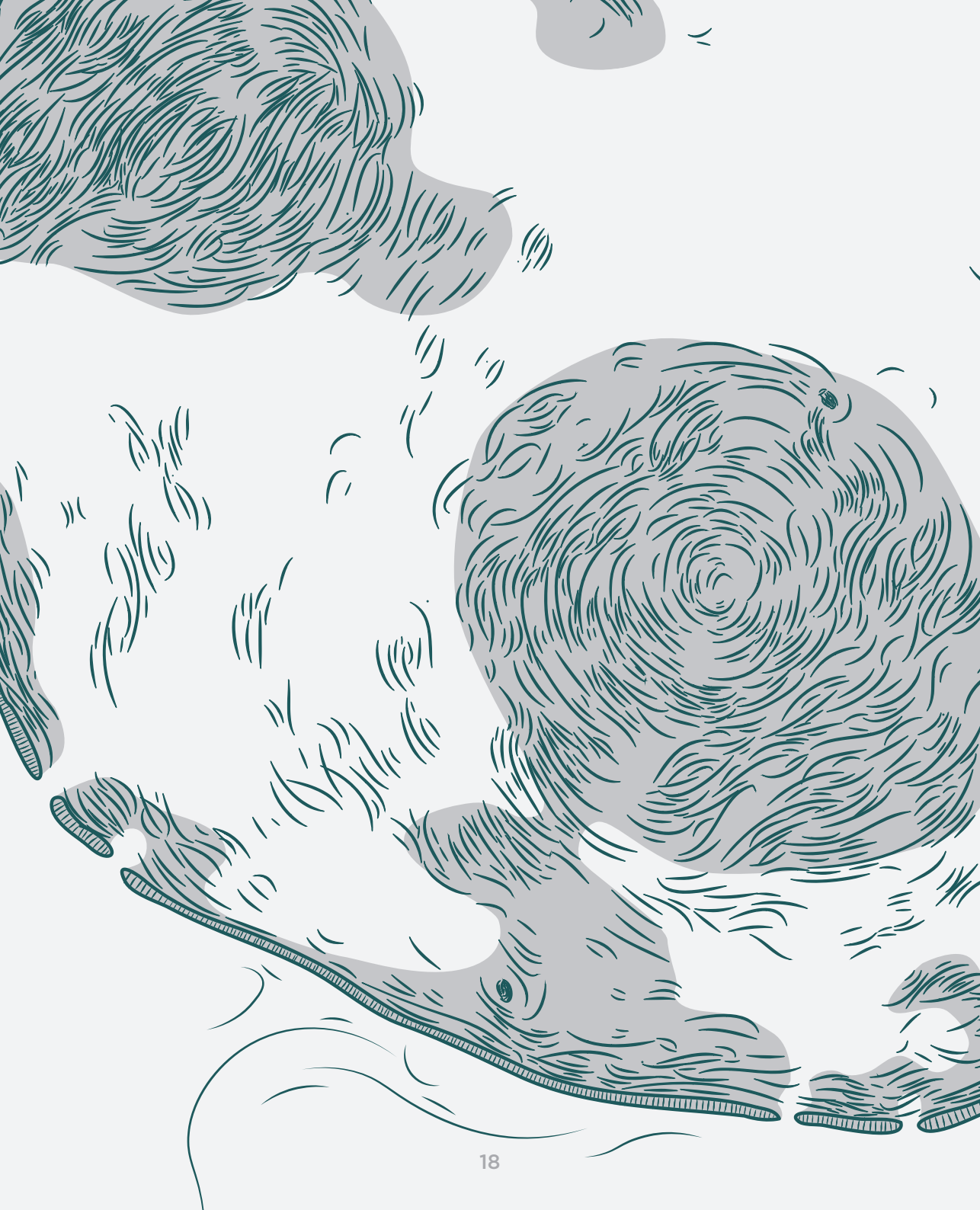

Endoplasmic Reticulum
Synthesis of Nanobiology // Ribosomes
Cell Membrane
Roadtrips to and from de Zweth
Cytoskeleton
Formation of Hooke // Nanobiology Team // Hub Evolution



NUCLEU

Two meters! That is the length of the DNA contained by a single nucleus. It is hard to imagine that this DNA occupies 15% of the total volume of the nucleus. Besides containing the genome, this membrane-bound organelle contains an interesting membraneless organelle: the nucleolus. This organelle self-assembles by means of the physical properties of the macromolecules embodying the nucleolus through the principles of liquid-liquid phase separation. It forms around nucleolus organiser regions that contain genes encoding for ribosomal RNAs. The synthesised ribosomes will translate the enormous information flow coming from the nucleus in the form of mRNA, which enables the cell to grow, function, and live properly.

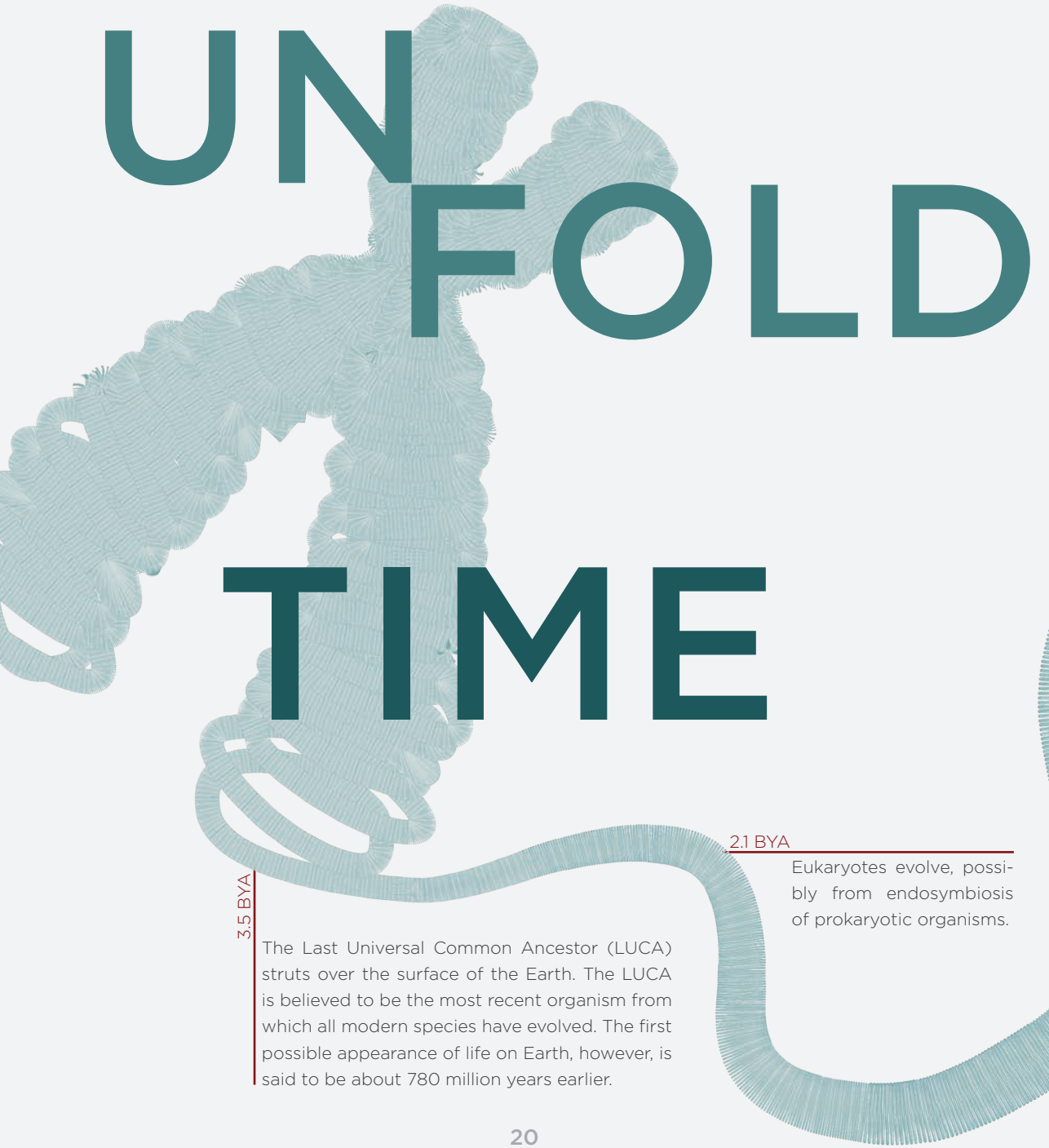

S



Many regulatory processes in the nucleus make sure the cell can work properly. Similarly, the board of a study association is crucial for its existence. Each year a team of motivated students devote their time to make sure the association is maintained (homeostasis), but can also grow (replication) and finally deliver happy nanobiologists who can look back at a study time with great memories (cell functioning).

The genome of a species is a product of a long process of evolution. Similarly, a study association, even one as young as S.V.N.B. Hooke, is shaped by its history. This history comprises the five years that the association has existed, but also the time preceding its existence. It is all encoded in its DNA.

UNFOLD TIME



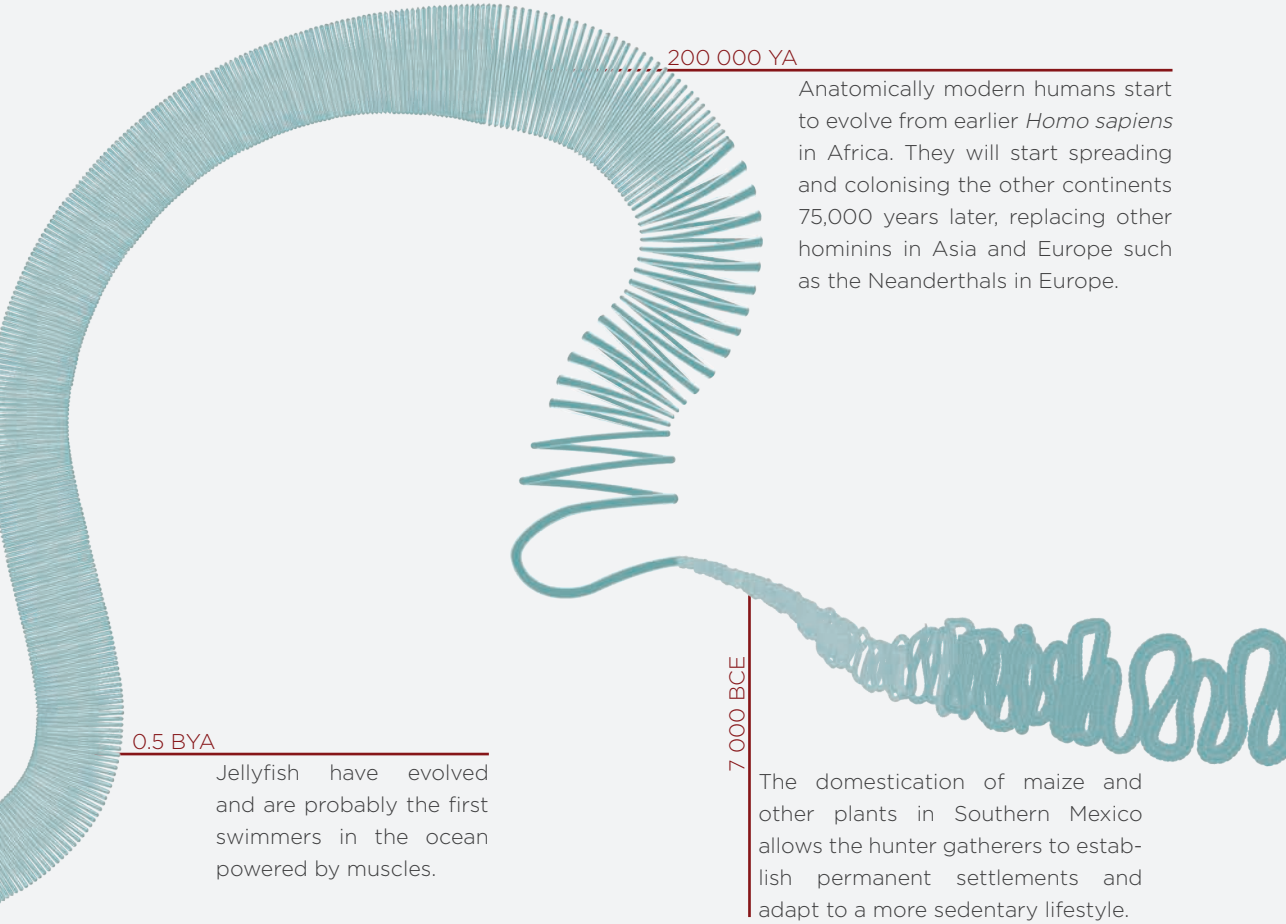
3.5 BYA

The Last Universal Common Ancestor (LUCA) struts over the surface of the Earth. The LUCA is believed to be the most recent organism from which all modern species have evolved. The first possible appearance of life on Earth, however, is said to be about 780 million years earlier.

2.1 BYA

Eukaryotes evolve, possibly from endosymbiosis of prokaryotic organisms.

ING



200 000 YA

Anatomically modern humans start to evolve from earlier *Homo sapiens* in Africa. They will start spreading and colonising the other continents 75,000 years later, replacing other hominins in Asia and Europe such as the Neanderthals in Europe.

0.5 BYA

Jellyfish have evolved and are probably the first swimmers in the ocean powered by muscles.

7 000 BCE

The domestication of maize and other plants in Southern Mexico allows the hunter gatherers to establish permanent settlements and adapt to a more sedentary lifestyle.

5th century BCE

Trying to understand the world by philosophising, Leucippus and his pupil Democritus propose that all matter is built up out of small indivisible particles called atoms (atomism). However, preliminary instances of atomism were found in ancient Indian philosophy in the 8th century BCE.

4th century BCE

The Sanskrit grammarian Pānini proposes a generative meta-language capable of forming infinitely many well-formed Sanskrit sentences from just a finite inventory of symbols. His system is detailed enough to be regarded as the earliest known computing language.

2nd century CE

Cladius Ptolemy develops his Ptolemaic model which will be the definite geocentric model for the following centuries. In 1543, Copernicus will present his heliocentric model.

984

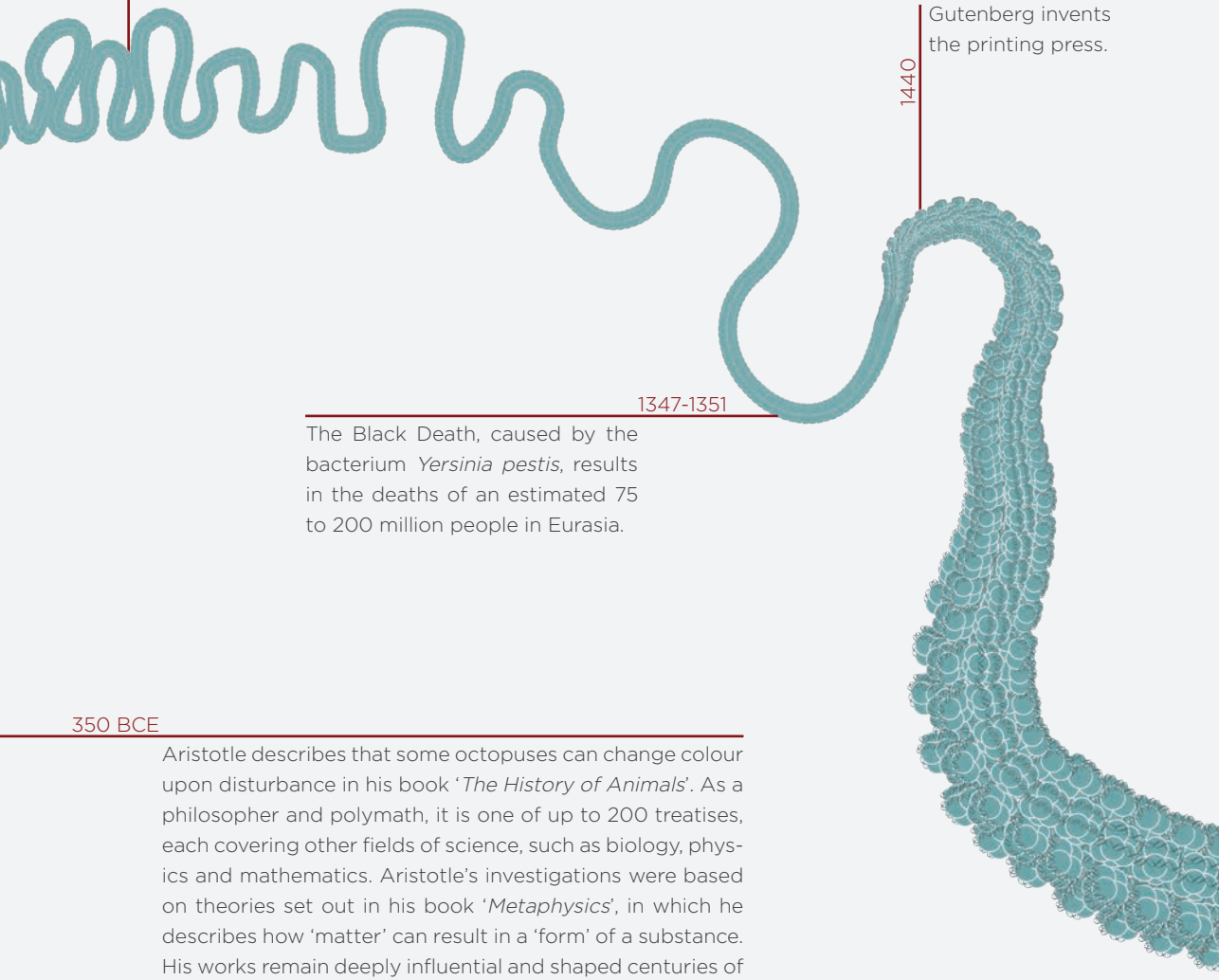
Ibn Sahl describes the behaviour of light in lenses and the optic law which later became known as Snell's law of refraction.

1440

Gutenberg invents the printing press.

1347-1351

The Black Death, caused by the bacterium *Yersinia pestis*, results in the deaths of an estimated 75 to 200 million people in Eurasia.



350 BCE

Aristotle describes that some octopuses can change colour upon disturbance in his book '*The History of Animals*'. As a philosopher and polymath, it is one of up to 200 treatises, each covering other fields of science, such as biology, physics and mathematics. Aristotle's investigations were based on theories set out in his book '*Metaphysics*', in which he describes how 'matter' can result in a 'form' of a substance. His works remain deeply influential and shaped centuries of philosophy and science up until the 17th century.

1511

Leonardo Da Vinci makes the '*Studies of the Fetus in the Womb*' sketches and is thereby the first to correctly depict the position of the fetus in the womb.

1581

The '*Plakkaat van Verlatinghe*' gets signed, in which many of the provinces of the Netherlands depose Philip II as their ruler.

28 July 1635

Robert Hooke is born.

1536

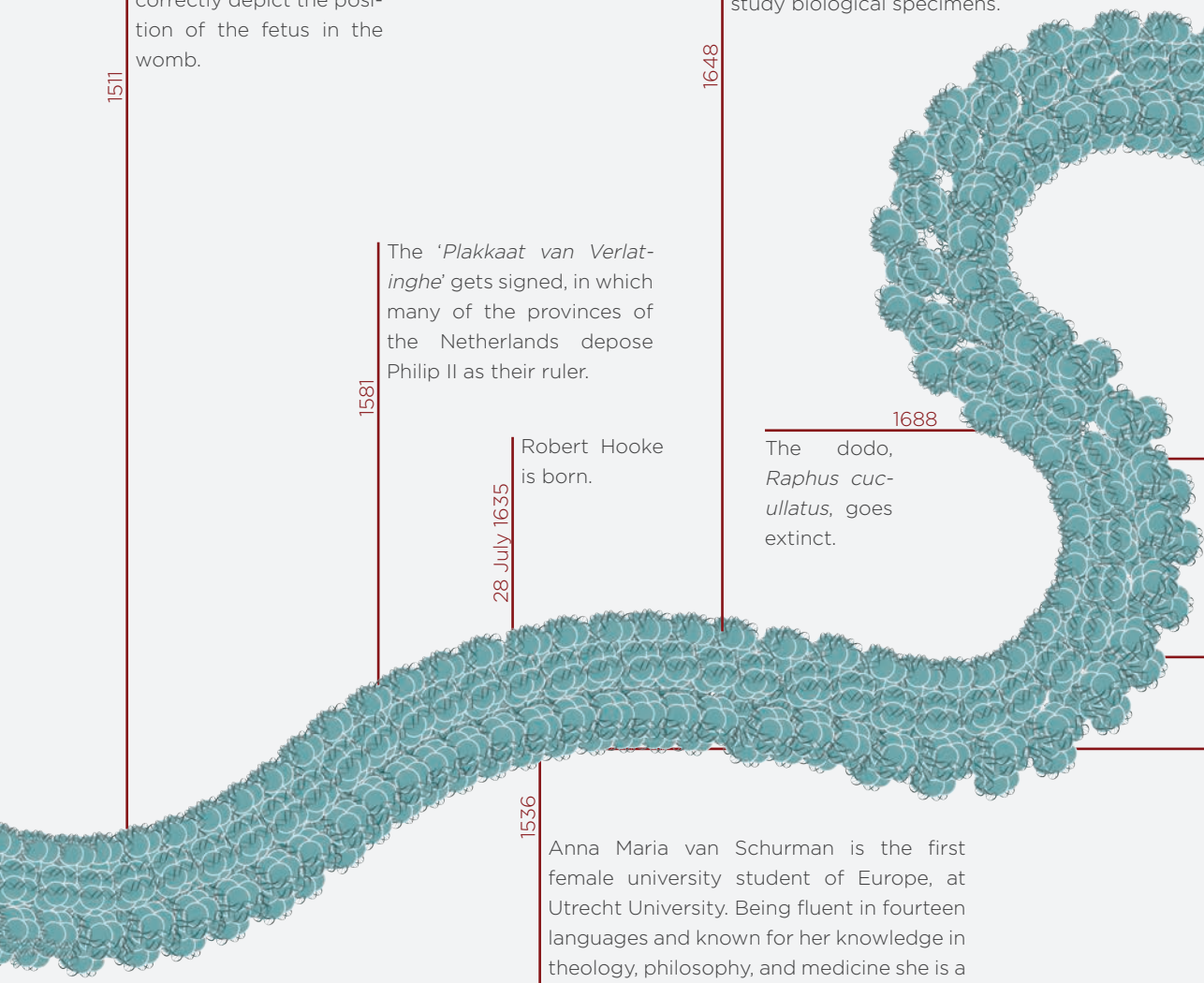
Anna Maria van Schurman is the first female university student of Europe, at Utrecht University. Being fluent in fourteen languages and known for her knowledge in theology, philosophy, and medicine she is a true multi-talent. Her 'Opuscola' contains a logical defence of women's right to study.

1648

Delft-born cloth merchant and self-taught scientist Antoni van Leeuwenhoek holds a magnifying glass for the first time. Antoni will later be called 'the father of microbiology' because of the high quality lenses he makes and uses to study biological specimens.

1688

The dodo, *Raphus cucullatus*, goes extinct.



1637

René Descartes publishes his book '*Discours de la Méthode*', which forms the preface for his treatises on optics, meteorology, and mathematics. The works of Descartes mark a turn towards a mechanistic investigation of a world governed by natural laws and as such form the foundation of modern science.

1660

Hooke's law: $F = -kx$

5 July 1687

The publication of Isaac Newton's '*Philosophiae Naturalis Principia Mathematica*' containing his laws of motion.

1736

The *Witchcraft Act* of 1735 puts an end to the use of magical powers as a legal offence in Britain.

1796

The first successful vaccine, the smallpox vaccine, is developed by Edward Jenner after he notes that milkmaids who got cowpox earlier could not catch smallpox anymore.

1824

William Buckland names the *Megalosaurus*. This is the first valid naming of a non-avian dinosaur genus.

September 1835

The Beagle reaches its destination: the Galapagos islands. On board is Charles Darwin. The finches on different islands give him inspiration leading to the Evolution Theory.

8 January 1842

William II of the Netherlands establishes the Royal Academy for the education of civilian engineers, for serving both nation and industry, and of apprentices for trade, which will later be known as the Delft University of Technology.

1843

Ada Lovelace translates a paper of Charles Babbage about his Analytical Engine, while also adding notes almost three times longer than the actual paper itself. She describes the workings of this machine, but also writes its first programme: an algorithm to compute Bernoulli numbers, making her the first known computer programmer.

1856-1863

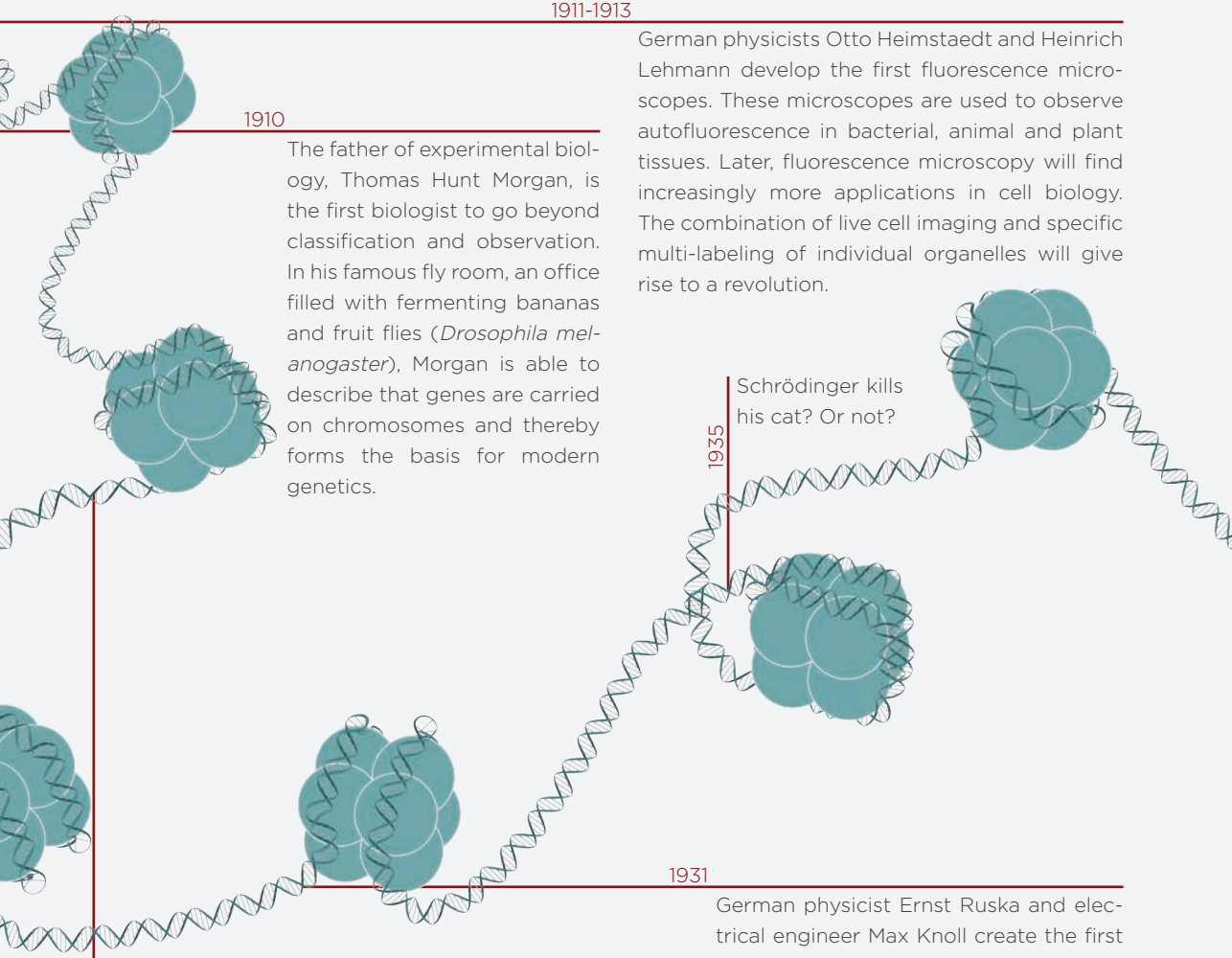
In an Austrian monastery, a monk named Gregor Johann Mendel is doing experiments with pea plants.

1898

With the help of her husband Pierre, Marie Curie announces the existence of polonium. Marie Curie will later become the first woman to win a Nobel prize, the first and only woman to win the Nobel Prize twice, and the first and only person to win the Nobel Prize in two different fields (chemistry and physics).

1905

Einstein has his wonderyear: he publishes on the photo-electric effect, brownian motion and special relativity.



1910

The father of experimental biology, Thomas Hunt Morgan, is the first biologist to go beyond classification and observation. In his famous fly room, an office filled with fermenting bananas and fruit flies (*Drosophila melanogaster*), Morgan is able to describe that genes are carried on chromosomes and thereby forms the basis for modern genetics.

1911-1913

German physicists Otto Heimstaedt and Heinrich Lehmann develop the first fluorescence microscopes. These microscopes are used to observe autofluorescence in bacterial, animal and plant tissues. Later, fluorescence microscopy will find increasingly more applications in cell biology. The combination of live cell imaging and specific multi-labeling of individual organelles will give rise to a revolution.

1924

The phrase "quantum mechanics" is first used in Born's 1924 paper "*Zur Quantenmechanik*". One year earlier, Louis de Broglie extended the wave–particle duality to particles, and in 1927 Werner Heisenberg will formulate the quantum uncertainty principle.

1931

German physicist Ernst Ruska and electrical engineer Max Knoll create the first electron microscope, which can magnify up to 400 times. Six years later, biological specimens will be prepared and looked at for the first time through an electron microscope. In 1986, Ernst Ruska will be awarded the Nobel Prize in Physics.

1935

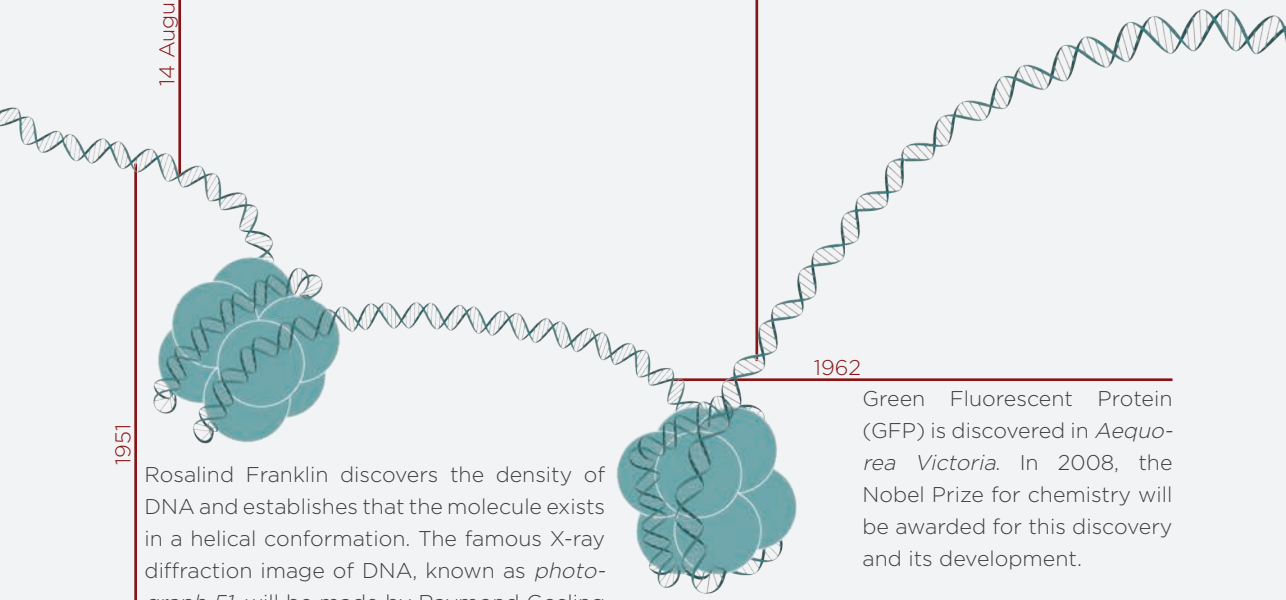
Schrödinger kills his cat? Or not?

14 August 1952

Alan Turing publishes his paper '*The Chemical Basis of Morphogenesis*' in which he mathematically describes how patterns can emerge from initially homogeneous biological systems. These Turing patterns will remain of relevance in the field of evolutionary developmental biology. Earlier, Turing helped design the 'Bombe', a computing machine that was able to perform cryptanalysis on the Enigma ciphering system in WWII, and coined the 'Turing test', which ought to determine whether a computer can think.

1964

June Almeida is contacted by Dr. David Tyrrell to help with the identification of a new virus labelled 'B814'. Almeida creates clear images of the virus under the electron microscope with a method she developed herself. She uses antibodies from previously infected patients to help identify the observed particles as a virus. After studying the images she remembers earlier observations of two similar viruses. Almeida and her co-workers decided to name this family the coronaviruses, as the virus' halo-like structure is reminiscent of a crown.

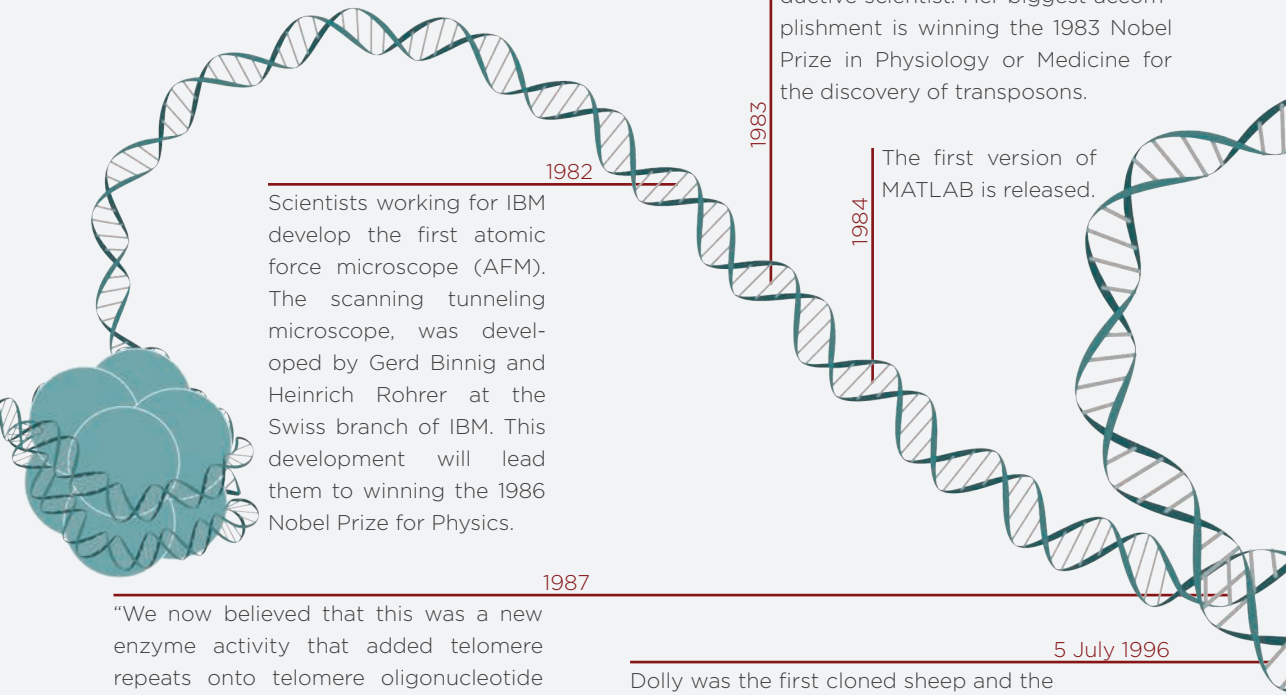


1951

Rosalind Franklin discovers the density of DNA and establishes that the molecule exists in a helical conformation. The famous X-ray diffraction image of DNA, known as *photograph 51*, will be made by Raymond Gosling in 1952 under supervision of Franklin. Her work will lay the foundation for James Watson and Francis Crick's suggestion that DNA is a double-helix polymer in 1953.

1962

Green Fluorescent Protein (GFP) is discovered in *Aequorea Victoria*. In 2008, the Nobel Prize for chemistry will be awarded for this discovery and its development.



1982

Scientists working for IBM develop the first atomic force microscope (AFM). The scanning tunneling microscope, was developed by Gerd Binnig and Heinrich Rohrer at the Swiss branch of IBM. This development will lead them to winning the 1986 Nobel Prize for Physics.

1983

American cytogeneticist Barbara McClintock focuses her entire scientific career on corn chromosomes. Actively publishing papers from 1929 to 1981, she is a dedicated and productive scientist. Her biggest accomplishment is winning the 1983 Nobel Prize in Physiology or Medicine for the discovery of transposons.

1984

The first version of MATLAB is released.

1987

"We now believed that this was a new enzyme activity that added telomere repeats onto telomere oligonucleotide substrates. We went home and celebrated. In the paper, submitted in August 1985 and published that December, we named this activity telomere terminal transferase, because we thought it added telomere repeats onto telomere substrates in a manner analogous to terminal transferase. That name, Tetrahymena telomere terminal transferase however, was a mouthful, and in 1987, on the suggestion of Claire Wyman, a graduate student in Liz's lab, we shortened it to telomerase."

5 July 1996

Dolly was the first cloned sheep and the first ever clone of an adult mammal, was born. An article about Dolly was published in Nature in February 1997, five days after Dolly's birth was announced. Dolly has three moms: her first mom provided the egg, her second mom the DNA, and her third mom carried her embryo. The DNA was taken from a mammary gland, and not a stem cell. This proved that a cell taken from a specific part of the body could recreate a whole individual. Suffering from severe lung disease, Dolly was euthanised in February 2003.

1 June 2002

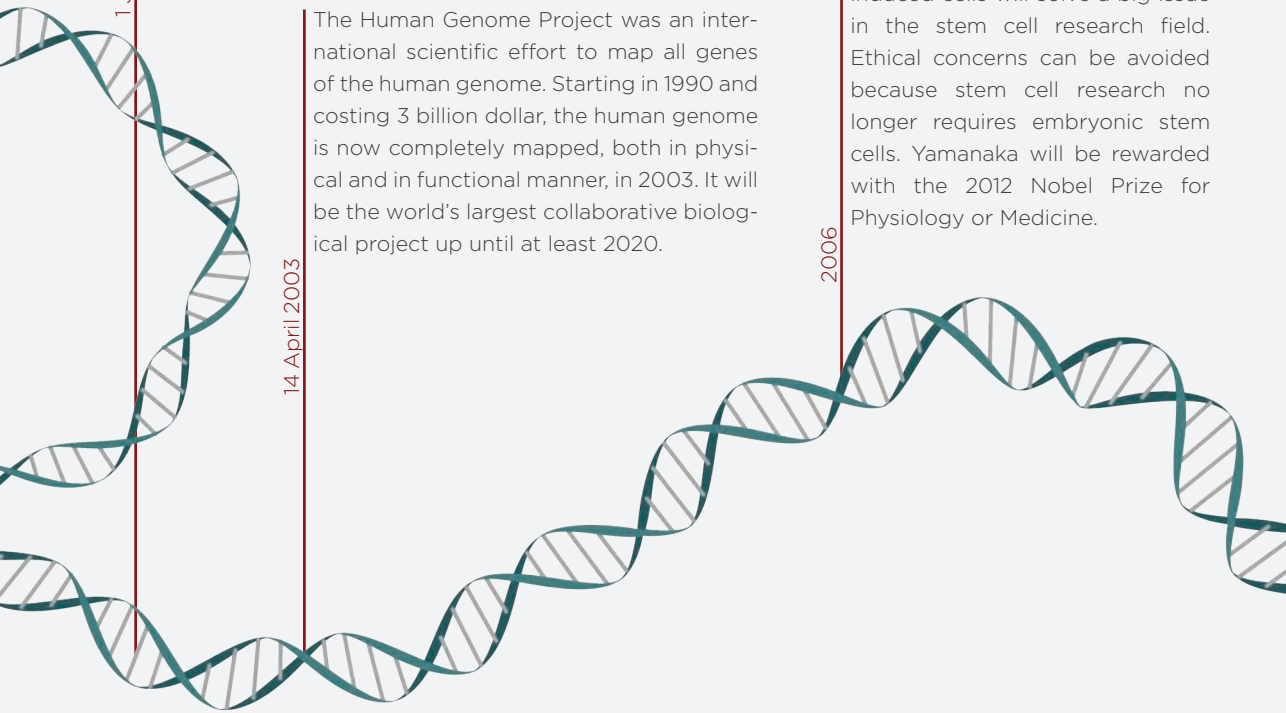
The Dijkzigt hospital, the Sophia Children's Hospital, the Daniel den Hoed Clinic, and the medical faculty of the Erasmus University fuse to form Erasmus MC, which will later become the biggest academic hospital of the Netherlands.

14 April 2003

The Human Genome Project was an international scientific effort to map all genes of the human genome. Starting in 1990 and costing 3 billion dollar, the human genome is now completely mapped, both in physical and in functional manner, in 2003. It will be the world's largest collaborative biological project up until at least 2020.

2006

The first induced stem cell is made by Japanese stem cell researcher Shinya Yamanaka. This is done by exposing a somatic cell to four genes (Myc, Oct3/4, Sox2, and Klf4), which will then transform into a pluripotent stem cell. The induced cells will solve a big issue in the stem cell research field. Ethical concerns can be avoided because stem cell research no longer requires embryonic stem cells. Yamanaka will be rewarded with the 2012 Nobel Prize for Physiology or Medicine.



2010

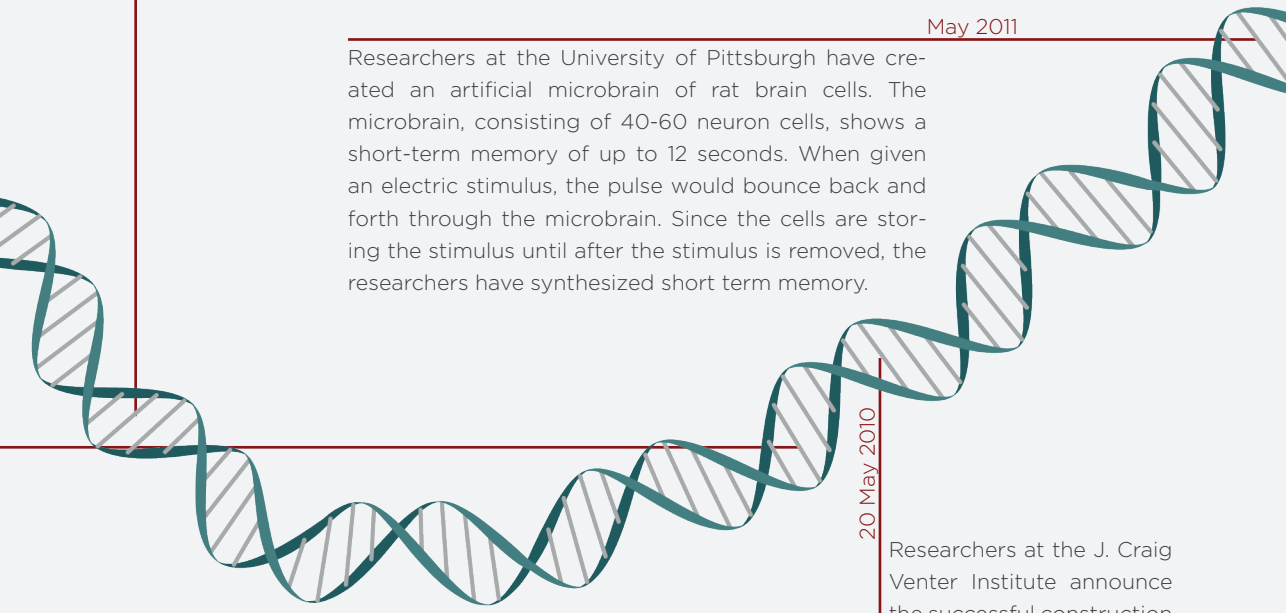
A headstone is donated to identify the previously unmarked grave of Henrietta Lacks, the woman behind the HeLa cell line. Without her consent, the HeLa cells were removed from Lacks during treatment for cervical cancer in 1951, and cultured to become the first immortalised human cell line. This cell line has been a pathway for countless biomedical breakthroughs, and will be still widely used up to at least 2020. However, the Lacks family was only made aware of the cell line in 1975, raising questions about patients' privacy and ownership of cells. Since then, Henrietta Lacks receives the credit and recognition she deserves. In 2017, a planet will be named '359426 Lacks' in her honour.

2008

Chilean researcher Yedy Israel discovers that gene therapy can be used to protect against the risk of developing alcoholism. The results of his research show that a certain allele can inhibit alcohol addition in rodents. When exposed to an antisense version of this gene, long-term drinking amongst rodents was reduced.

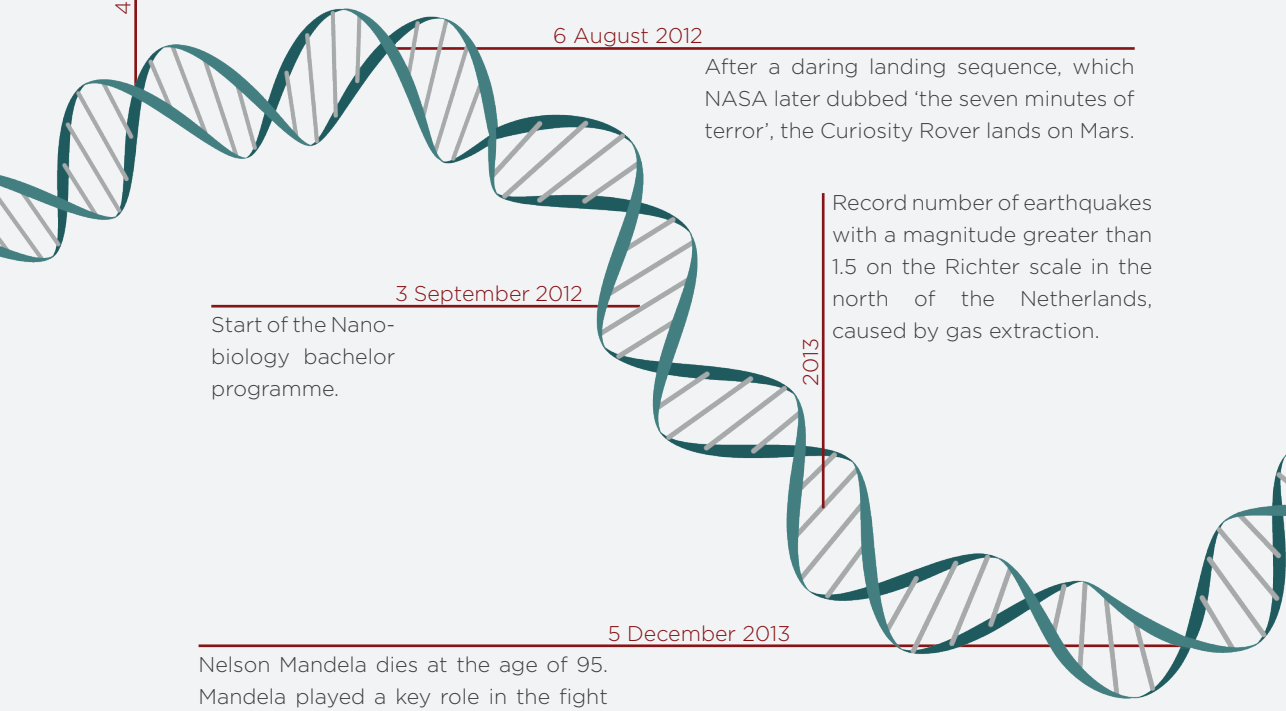
May 2011

Researchers at the University of Pittsburgh have created an artificial microbrain of rat brain cells. The microbrain, consisting of 40-60 neuron cells, shows a short-term memory of up to 12 seconds. When given an electric stimulus, the pulse would bounce back and forth through the microbrain. Since the cells are storing the stimulus until after the stimulus is removed, the researchers have synthesized short term memory.



20 May 2010

Researchers at the J. Craig Venter Institute announce the successful construction of the first self-replicating synthetic bacterial cell.



4 July 2012

Rolf-Dieter Heuer announces the discovery of the Higgs Boson. A year later, Peter Higgs and François Englert will be rewarded with the Nobel Prize for their prediction of the particle.

6 August 2012

After a daring landing sequence, which NASA later dubbed 'the seven minutes of terror', the Curiosity Rover lands on Mars.

3 September 2012

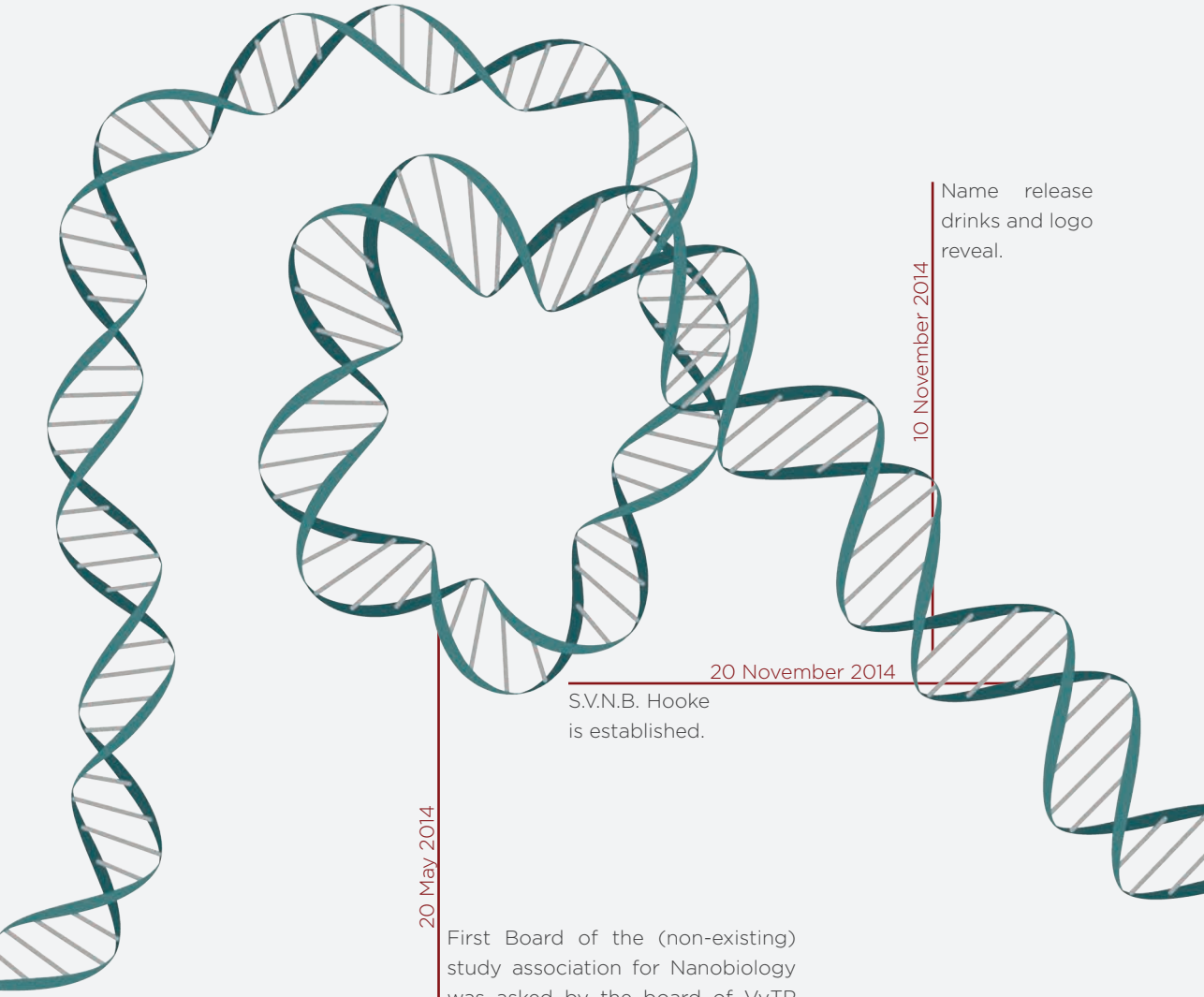
Start of the Nano-biology bachelor programme.

2013

Record number of earthquakes with a magnitude greater than 1.5 on the Richter scale in the north of the Netherlands, caused by gas extraction.

5 December 2013

Nelson Mandela dies at the age of 95. Mandela played a key role in the fight against the apartheid and after spending 27 years in prison because of his political activities he became South Africa's first ever black president.



10 November 2014

Name release drinks and logo reveal.

20 November 2014

S.V.N.B. Hooke is established.

20 May 2014

First Board of the (non-existing) study association for Nanobiology was asked by the board of VvTP and MFVR. Nanobiology students joined the activities of VvTP and MFVR until S.V.N.B. Hooke was born.

BOARD 1
2014/2015

'"Start with the end in mind." Never thought that those six words would become the motto during our board year. We were an enthusiast group of students with the bold ambition to become not only the founding board but also to become the very first board of S.V.N.B. Hooke. We started with absolutely nothing except for a high dose of energy, enthusiasm and tons of ideas on how we could make our association 'better' than all the others in Delft and Rotterdam. By using those wild and sometimes crazy ideas as our final goal we were able to realize the founding of the association in only a few months instead of year(s). Furthermore, we did not see any limitations, only endless possibilities for events during our own year but also for the future of the association. This mindset together with some courage allowed us to organize amazing events of which a lot of people thought on forehand were not possible for a new association like ours. Now, as I am writing this piece for the very first lustrum book I have once again come to realize how special it all has been. Those endless days of dreaming about the future of the association is suddenly no longer a dream. The association is thriving and the very first lustrum is already here. We are honored that we were given the opportunity to set the stage for this association together with all the members and look forward to many lustrums to come.'

What is the first story that pops into your mind when you think back of your board year?

The opening party at Lijm en Cultuur is something we will never forget. The committee wanted to have it bigger and bigger, while half of the board was not confident it would succeed. In the end we had to add extra tickets and expand the room to fit all 300 people!

When and how did you start and what was the role of the VvTP and MFVR in founding Hooke?

We were all very excited about the idea of having our own study association so we applied for the founding board. Interviews with some board members of either the VvTP or MFVR resulted in our fantastic group of five.

During the summer holiday of 2013, we planned many weekends away to brainstorm about how to set up the association and of course to get to know each other better! Two board members of the VvTP and two of MFVR, were our guides during the founding period of

the association. They helped us a lot with practical stuff, such as money for our first events, and reviewed the formal documents that we designed to found the association. There was also a council of advice of about 15 people that helped us. They were quite intimidating and the meetings would usually last at least for four hours. After these meetings we often thought that the association would never start in our year, but we kept the end goal in mind and realised the founding of the association within 6 months!

"Our board was just really hyped and wanted to make it happen in one year, becoming the first board of the association."

Did you think it was "scary" to sign up for a board of a non-existing association? What did you expect it would entail?

No not scary, we thought it was exciting to organise events specifically for Nanobiology students. There were no expectations at all, it wasn't even expected of us that the association would be founded in that year so we aimed to make every event special. Our board was just really hyped and wanted to make it happen in one year, becoming the first board of the association next to the founding board.

What was your relation with the nano students when you started? Was everyone aware of "your existence" and what you guys were doing?

Our relationship was good! We'd all been Mentors, which helped us to get in close contact with students across different years of study. Since the study was rather small at that time, pretty much everyone knew of each other's existence and many were friends! To the new freshman, we introduced ourselves as one collective sperm cell, to start the fertilization of our study association. To establish ourselves as "main authorities", we continued to dress in full suit throughout the entire EJW, as we thought we would definitely then be taken seriously. Whether that really worked is a different story..

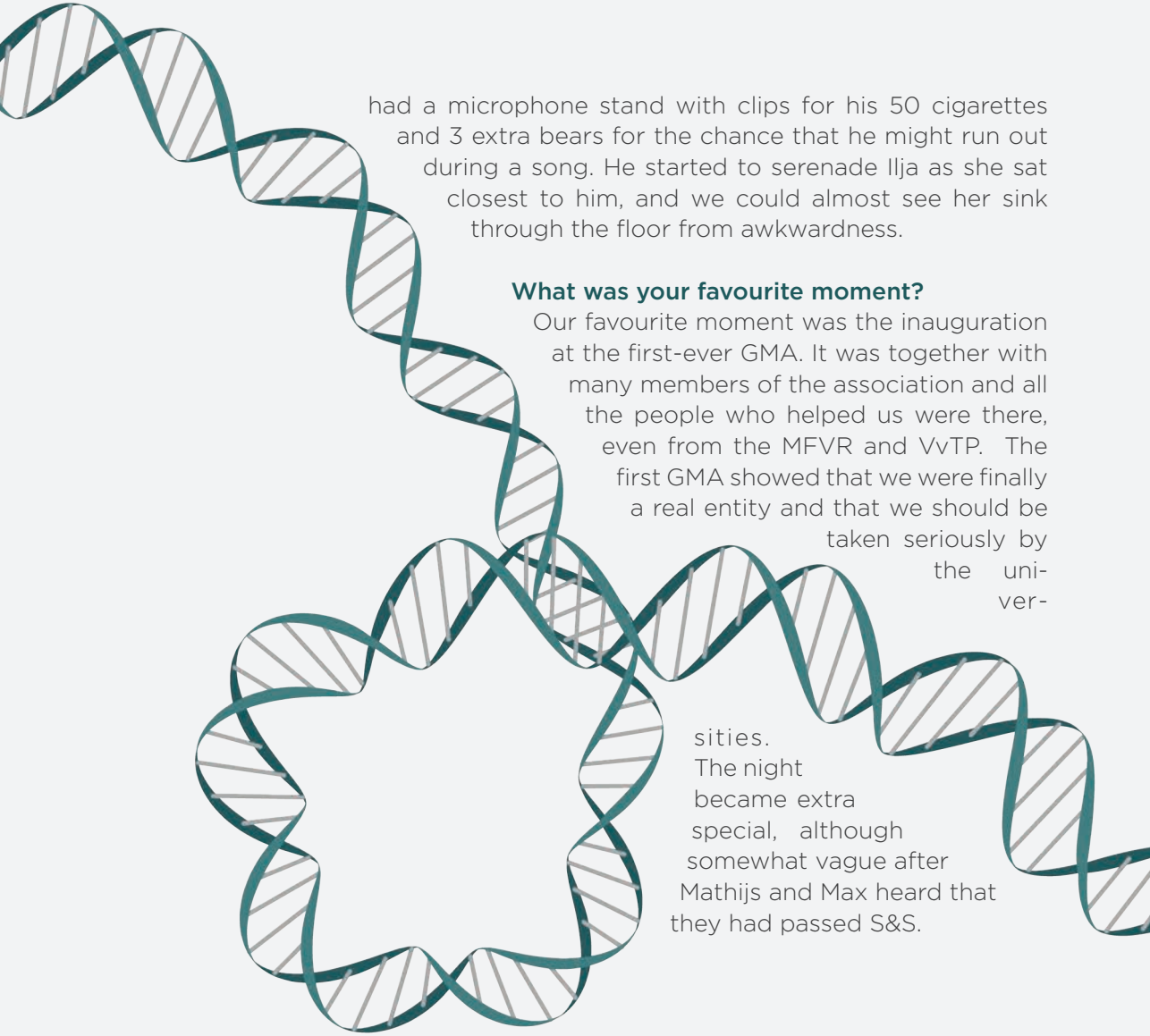
What is your favourite bar-related anecdote?

We were on the very first Multiple Day Excursion of Hooke to Keulen. The camping was situated directly next to a bar where we had dinner. We heard that there would be a performance by a Joe Cocker impersonator that evening. He was quite interesting. He

had a microphone stand with clips for his 50 cigarettes and 3 extra bears for the chance that he might run out during a song. He started to serenade Ilja as she sat closest to him, and we could almost see her sink through the floor from awkwardness.

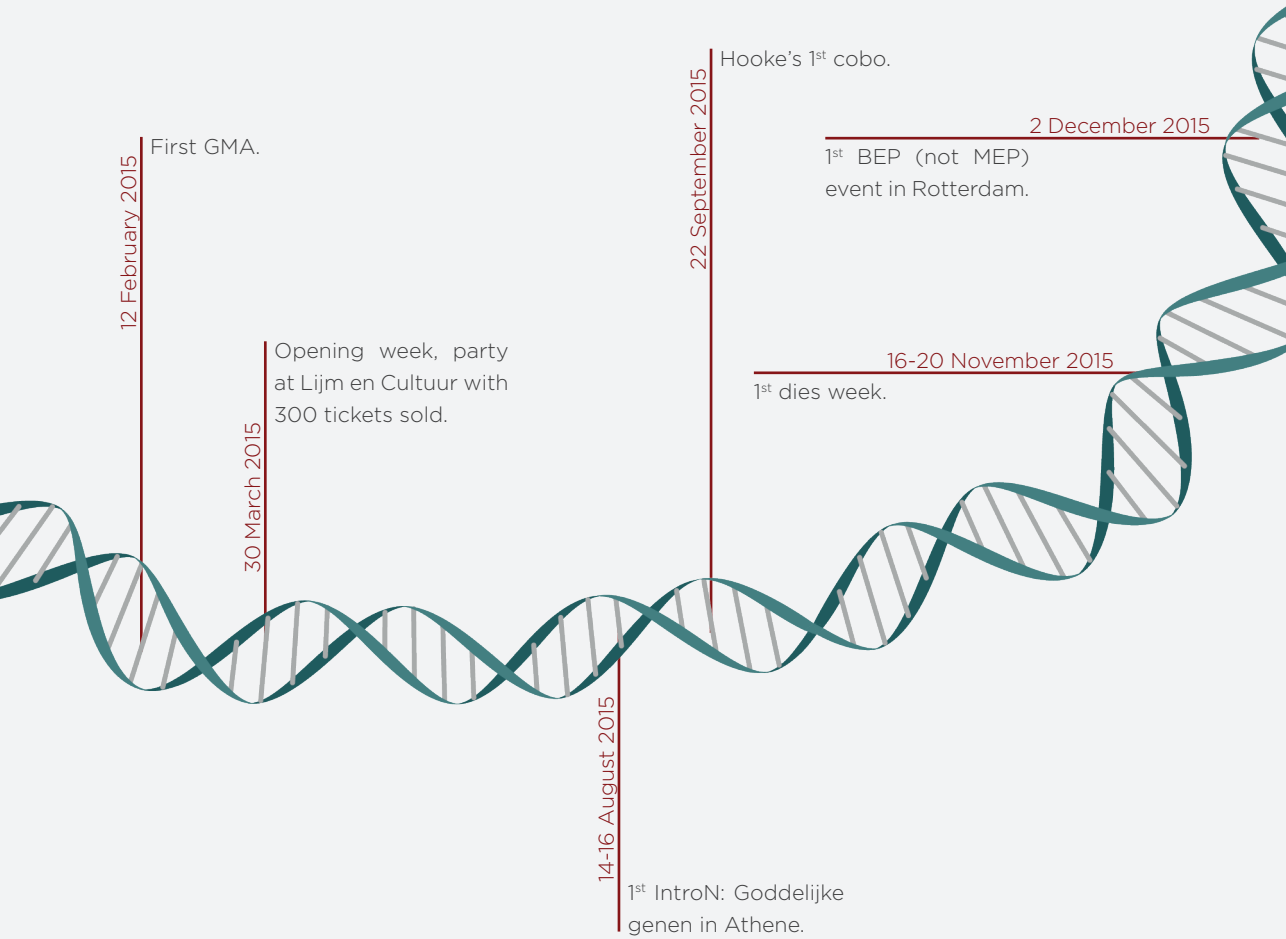
What was your favourite moment?

Our favourite moment was the inauguration at the first-ever GMA. It was together with many members of the association and all the people who helped us were there, even from the MFVR and VvTP. The first GMA showed that we were finally a real entity and that we should be taken seriously by the universities. The night became extra special, although somewhat vague after Mathijs and Max heard that they had passed S&S.



The board of 2014/2015 was constituted as follows:

Miranda Visser - President
Marre Niessen - Secretary
Max Betjes - Treasurer
Mathijs Verhagen - Commissioner of External Affairs
Ilja Briggeman - Commissioner of Education


12 February 2015
First GMA.
30 March 2015
Opening week, party at Lijm en Cultuur with 300 tickets sold.
14-16 August 2015
1st IntroN: Goddelijke genen in Athene.
22 September 2015
Hooke's 1st cobo.
16-20 November 2015
1st dies week.
2 December 2015
1st BEP (not MEP) event in Rotterdam.

BOARD 2
2015/2016

'Although it has been five years, our connection is still compelling. We are still ecstatic about our next board holiday, we know how to achieve goals together, we completely accept each other's good and bad sides, we make fun of each other, and already talk about our future holidays with our adorable children. Additionally, we all made many connections with other Hooke members. These friends and study mates will always be the people with whom we shared our personal growth. These are memories we never want to forget and still cherish during our meetings. We hope that all Hooke members can say that they share strong memories created with the help of Hooke, because we think that is what the association should stand for. Have fun reading this book, which showcases so many memories from everyone. Please be inspired to create new ones.'

You were the first board that actually had to start the year as a board, what was that like? Did B1 prepare you well for what was to come?

B1's first priority was creating a foundation for the association, so thinking of a name, making everything legal, starting committees, and so on, so they did not have a regular board year. This meant that our board year was going to be very different. It was hard to prepare us for everything that would come, as no one knew what it would entail. A positive aspect of this was that the entire schedule of the year was open to be filled in with the ideas of either our committees, ourselves or just interested members. There were also many newly organised events.

"If you encounter difficulties, you can count on your fellow board members to step in and help you."

We had meetings with board members of other study associations to inform ourselves about the ways in which other, more mature, associations coped with stuff.

How did you experience your question action?

We were funnelled into a meeting under the pretense of discussing plans for the new bar in the new building. Things started off unnoticeable, although Marre (B1) wrote remarkably bad and sloppy minutes. This caused the females to suspect some form of question action. These signs were of course nót picked up by the male squad, who were going good on the term 'het tankstation' (the gas station) as a name for the new bar. Kees had actually forgotten that he applied for a board year

altogether. We were subsequently abducted, thrown into the TN cellar, driven off somewhere far away, asked to become board members, dumped into a canal, and brought home again with symptoms of hypothermia in a record time of 2:55.

What did the first day at the hub look like?

Disgusting. The old hub was hidden away from FMVG and members, so it was generally a lot messier than it is now. Not only messy, it was unhygienic. This only got worse during the first weeks, as we were very busy drinking (free) beer and socialising with other boards during the cobo (constitution borrel) period. But we were very excited and happy, so we accepted the mess! After this period some of us (read Fiona and Mandy) started to try and keep the hub at an acceptable state by cleaning it once in a while, which was not required but still appreciated by the rest of the board. However, we would have enjoyed sitting on chairs of which the springs didn't poke through.

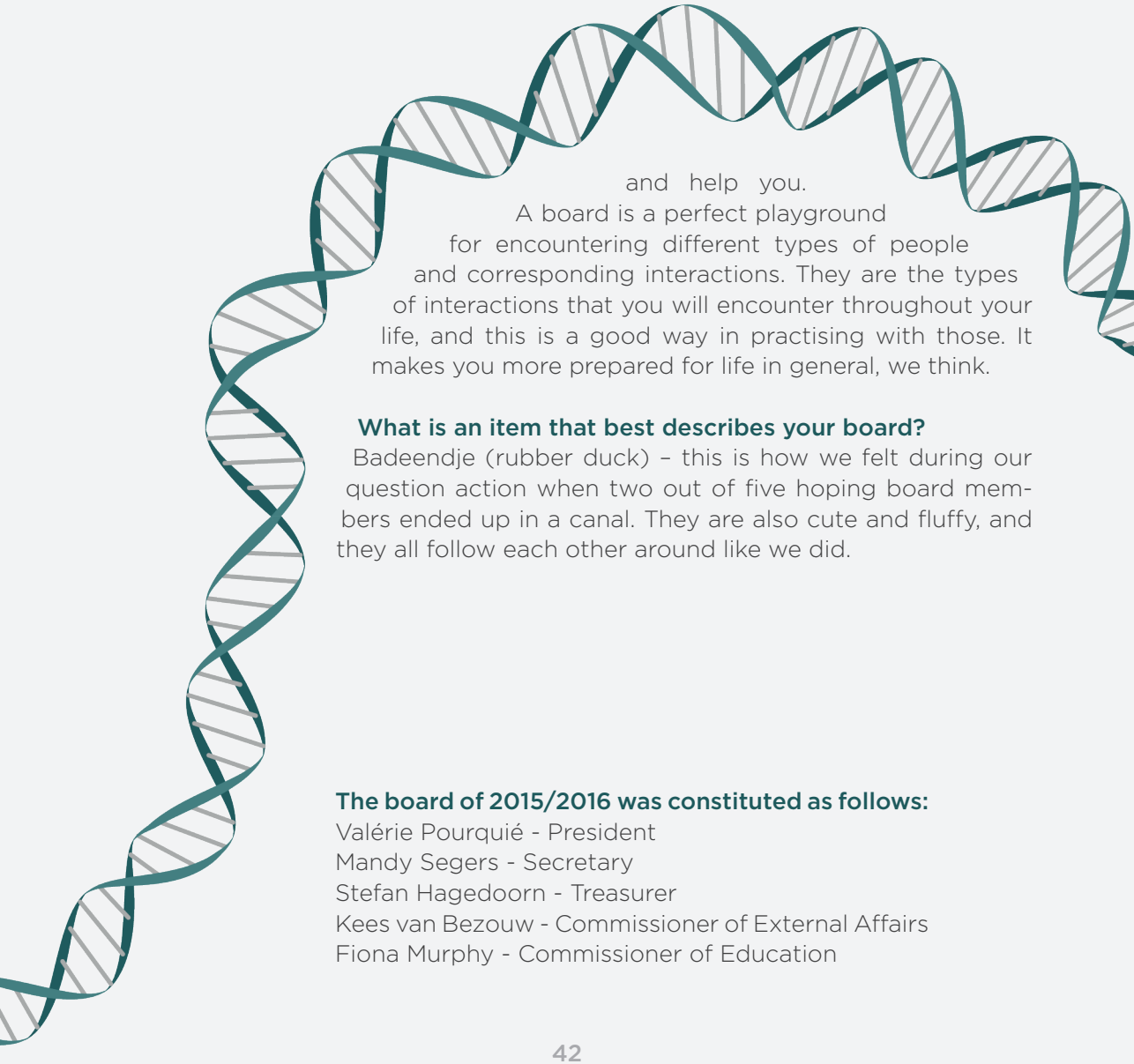
What were your goals for your board year and how did these work out?

Structure and communication were our main goals for the association. We also had personal goals that were very different, as we were all at different stages with regards to studying and life in general. In the end, we think we implemented some stuff there that was necessary for a study association, with a larger focus on more serious stuff like BEP/MEP events and a magazine (mRNA). We also contributed to the association with a lot of practical things like the member email, automatic invoices, multiple year plan, a minor orientation booklet, and tools for the committees to start up and work in a structured way. We also wanted to make the process of changing boards as easy as possible for subsequent boards so that they wouldn't have to reinvent wheels. We think we succeeded in that.

"We would have enjoyed sitting on chairs of which the springs didn't poke through."

Did your board year change you personally?

Yes, we all changed in the way we work as a team and individual. During a board year you are responsible for many things and people, and you learn to optimise situations to make them work for as many people as possible. We also became aware of how when you have a common goal, you can embrace your differences and just go for it. We also realised that even if you encounter difficulties, you can count on your fellow board members to step in



and help you.
A board is a perfect playground for encountering different types of people and corresponding interactions. They are the types of interactions that you will encounter throughout your life, and this is a good way in practising with those. It makes you more prepared for life in general, we think.

What is an item that best describes your board?
Badeendje (rubber duck) – this is how we felt during our question action when two out of five hoping board members ended up in a canal. They are also cute and fluffy, and they all follow each other around like we did.

The board of 2015/2016 was constituted as follows:
Valérie Pourquié - President
Mandy Segers - Secretary
Stefan Hagedoorn - Treasurer
Kees van Bezouw - Commissioner of External Affairs
Fiona Murphy - Commissioner of Education

May 2016

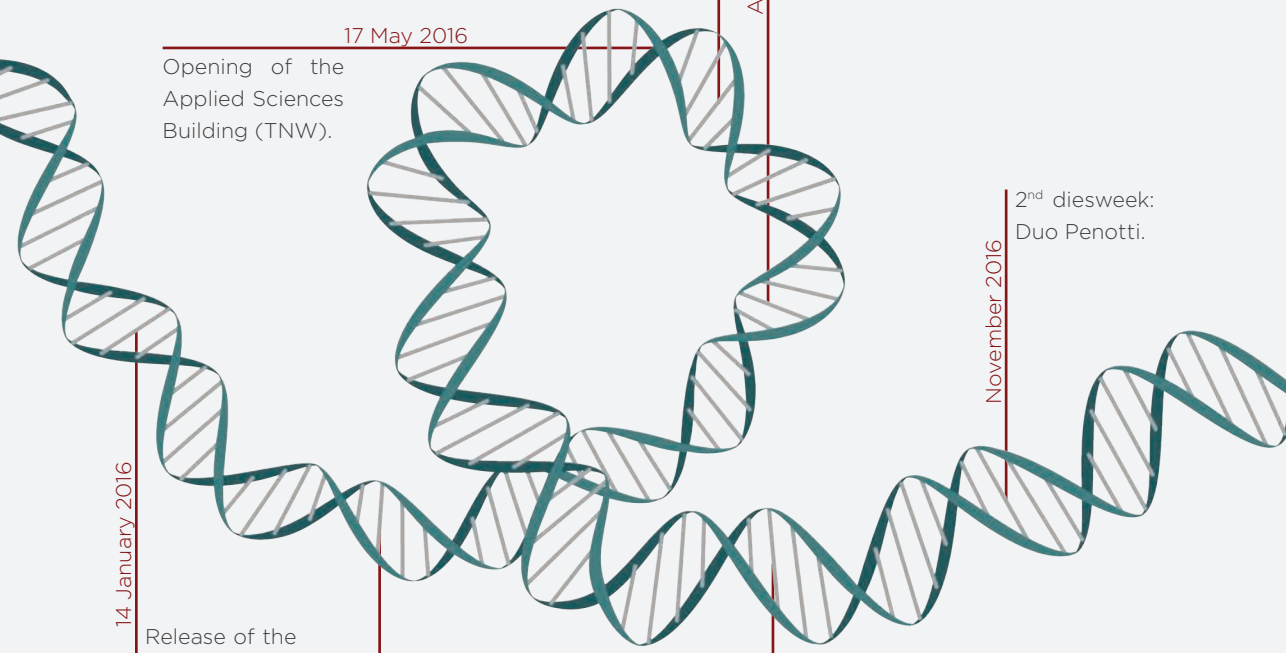
Sweaters for sale. First sweater sold to Rosanne Wallin. In the first 2 weeks, 40% of members had bought a sweater.

April 2016

Birth of the real member register, with 172 members.

17 May 2016

Opening of the Applied Sciences Building (TNW).



November 2016

2nd diesweek: Duo Penotti.

14 January 2016

Release of the 1st mRNA.

March 2016

1st and only Hooke Easter card.

August 2016

2nd IntroN: Take the leading strand to Neverland.

BOARD 3
2016/2017

It has already been three ('vo) years since we, B3, were the board of S.V.N.B. Hooke. At this point, memories of small details are starting to fade away little by little. We don't see each other that often anymore, and sitting in our small hub feels like a long time ago. But when the five of us manage to meet up, it immediately feels like old times again, only now accompanied by nostalgia. At some point we always bring back some anecdotes from back then, or start making inside jokes.

We had a fantastic evening diving into our mental archive for this lustrum book, laughing about random stuff that happened back then and reviving some precious memories. We hope that many other memories of Hooke's first five years are being kept alive like this, by many other members. That way, at the next lustrum, we will be able to share some good stories and remember the great time we had.

How was the first contact with your fellow board members? Did you already know each other well?

Not everybody knew each other well. There were already some 'genetic links', as Amanda had been Rachel's mentor mum and Rachel had been Rosanne's mentor mum. Some of us had already been in a committee together.

What was it like to move everything in the hub from TN to TNW Zuid at the start of your year? Was it considered an upgrade?

The place was nice, but other than that it was not really an upgrade. It was a big disappointment that we could not have a tosti-ijzer (sandwich maker) anymore. We also had issues regarding the coffee maker and we could not have a kettle. It was also too bad that all the students still had a lot of lectures at TN, so we were a bit lonely.

"It was a big disappointment that we could not have a tosti-ijzer (sandwich maker) anymore."

What did the first day at the hub look like?

We were going to make board pictures and Amanda was hungover. Also, there was only one computer yet so everyone else had to work on their laptops.

How was the ambience at the hub at the beginning of the year and how did this evolve over time?

It was small, messy, and stuffy. It was difficult to concentrate because you could hear everything around you, but it was very gezellig to be together! We never played music because everyone

disliked each other's music. For members, it was not very interesting to be at the hub, there was also not really a place to sit. Throughout the year, not much changed, although we did get a coffee maker! Then, more members came by, which was very nice. The coffee maker was very slow though.

"We wanted to make sure that the transition from a small group of people that knew each other well to a real association would go smoothly."

When you started the year, did you have any specific goal in mind you wanted to achieve as a board?
The association was growing fast, as there were more than 100 first year students in our board year. We wanted to make sure that the transition from a small group of people that knew each other well to a real association would go smoothly. The challenge was to make sure that this could happen while keeping the close bond that was there between the members. Also, we wanted to involve the international members more, so we started using English.

Did you also have role-specific goals?
Rachel had the goal of organising a career event which became AScon-nect and was a huge success. Amanda wanted to make a house style. This went really well and it became very nice. Jacobus wanted to upscale the bookkeeping so it would keep working for the growing association, this took a lot of time but it worked out well. Bas wanted to improve the feedback loop of the education feedback, this went quite well but it was difficult. Rosanne wanted to make the transfer between generations of committees easier so we wrote the committee protocol, but it turns out that communication is still difficult.

Can you tell us something about Bar het Lab? How were the drinks?
There were never many people at the drinks, partly because everyone had lectures in different buildings and because EI was during the drinks, but also because the bar did not exist up until our year. During the drinks, we always enjoyed the gross take-away food, the craft beer, and the chocolate milk.

What is your legacy for Hooke? How did your board year contribute to the synthesis of Hooke in its first five years?
We made a board year for Hooke applicable for a full-time profiling fund instead of part-time. This did not apply to us yet, though, so we worked (or at least, we were supposed to work) part-

time. Also, during the Wnt vacation in our year we travelled, by plane, to the sun for the first time. We also organised the first Hooke gala (half-lustrum gala) and ASConnect!

"We are most proud of ourselves and the fact that we survived."

What are you most proud of? What did you expect to turn out better?
We are most proud of ourselves and the fact that we survived. We expected to have enough time to study, but this turned out not to be the case.

Which GMA motion do you remember best and how did you deal with this motion?
Crying = chugging, for during the changing GMA. We cried but did not chug.

The board of 2016/2017 was constituted as follows:
Amanda van der Sijs - President
Rosanne Wallin - Secretary
Jacobus Dijkman - Treasurer
Rachel Los - Commissioner of External Affairs
Bas Nieuwenhuis - Commissioner of Education

More than 100.000 euros turnover.

1 April 2017

Parents day at the Erasmus MC.

17 May 2017

3rd Symposium: Zooming into Bionanoscience.

20 May 2017

Half-Lustrum Gala in Rotterdam.

14 June 2017

1st ASconnect, career event for Applied Sciences.

November 2017

3rd diesweek: Mexico.

BOARD 4
2017/2018

'A board year is like a box of chocolates, you never know what you're gonna get. From recording our reveal-vlog to installing our successors, every day was wonderful (or educational). Many hours were spent coming up with random ideas to take Hooke to the next level and strengthening the foundations of the association, while also enjoying time with our members. Hooke is a tight community with assertive members who together make the association nicer for everyone. It's wonderful to see members organise activities that bring people a smile to their faces. It was an honour to guide this process. New and original ideas are always encouraged within Hooke: if you can dream it, you can do it! Let's keep this mindset for the upcoming years to let Hooke grow to its full potential. For now: 'Laten we samen het lustrum vieren!''

What is the first story that pops into your mind when you think back of your board year?

The Christmas dinner started as a random idea of the ATP, and we went along with it. That evening turned out to be a huge success! All the committees had separately made a dish for the dinner, and you could see 80 or 90 people from Hooke coherently enjoying themselves and eating together. It was very clear to see how Hooke is about bringing people together. Our final board evaluation was also very nice. We realised then what a tight group we had become and how much we had done. Oh, and moving day!

Yes, because you moved from the old hub next to Bar het Lab to the current hub? How did that go and who started it?

Yes, that was a difficult process. We were experiencing an unpleasant environment at the old hub, giving us headaches and other inconveniences. When we were complaining about this at the Servicedesk, they created a call about the issue, which started a lot of bureaucracy. We knew it would not be easy of course, because the building was full and if we wanted more space, someone else needed to get less. The TU started measuring the temperature and humidity of our room and we had to count the number of people in the hub at specific times and write down what they were doing and why they were using the hub. After some intense discussions within the faculty, we were really happy to be able to move to the current hub, which used to be a shared committee room of Hooke, LIFE, and TG.

After the initial rage was over, our bond with TG actually did become a lot bet-

ter than before. We really liked to be right next door to them and LIFE. Most of our memories seem to be from the new hub. After a week, it was already hard to picture ourselves sitting in the old hub. It used to be too crowded if there were more than three members in the old hub and it felt very crammed. When we moved into the current hub, the social aspect of the hub grew a lot.

When we moved into the current hub, the social aspect of the hub grew a lot.

How did your year contribute to the synthesis of Hooke?

During our policy weekend, we came up with the theory that the association grows in a stepwise manner; so one board creates a lot of new things (that's a step) and then the next board stabilises this and provides more solid ground, then again there is a lot of innovation, and so on. We had the feeling that we were the grounding board after all the innovations of B3. So if we would put this in more biological terms: B1 wrote the genome of Hooke, then B2 started transcribing it into actual activities and committees with evaluations, B3 did the translation to proteins in all different forms, and we did the protein folding. The proteins were already there and with them we wanted to make new shapes and stable shapes so that the proteins would not directly denature.

We tried to provide solid groundwork for what was already there. Our main goal was 'to make sure that all members would be able to exploit the potential of Hooke'; to get the most out of the association. We wanted to involve a broader range of people in the association, via committees and the types of activities we organised. We also tried to streamline communication, knowledge transfer, and other things that lay the groundwork for more efficiently bringing a larger group of people together. We hope that this gave many people the opportunity to execute their ideas. There is a lot of knowledge and enthusiasm in members and old boardmembers and other associations, and so on, that you can use to bring the association and yourself further. We hope that the coming boards will keep asking questions to grow even more, and by passing on this vibe we hope to have increased the evolvability of Hooke as an association. We were also the first board that started on big plans that would definitely not be reached in our own board year, like the symposium of

we hope to have increased the evolvability of Hooke as an association.

The board of 2017/2018 was constituted as follows:
Myrthe Smit - President
Tom Aarts - Secretary
Danilo Remmers - Treasurer
Cleo Bagchus - Commissioner of External Affairs
Dirk Kruit - Commissioner of Education

2018, Diffucie (long study trip), asking our first honorary member, and the pre-lustrum. In that way we also laid groundwork for bigger events that extended beyond our own year.

We are also really proud of helping each other through difficult times and the fact that we could fall back on and help each other when needed.

February 2018

WNT holiday to Fuerteventura.

22 February 2018

ATP Christmasdinner, for which every committee made a dish.

21 June 2018

1st GMA of S.V.N.B. Hooke that is held completely in English.

10 March 2018

Board 4 moves from the old hub next to Bar het Lab to C0.010.

9 May 2018

1st LYSE (lower years excursion) to Gent.

10 October 2018

Biggest symposium yet with the theme: From Cell to Self.

21 November 2018

4th diesweek with the busiest brakke bingo ever.

BOARD 5
2018/2019

'The great thing about being the board is that you can gain so much from it. Some compare it to pregnancy, at the moment it can be hard, afterward, only the beautiful things stay with you because they weigh 2000x heavier than the blood sweat and tears you put in. Just a few examples of where this satisfaction comes from: helping and seeing the association you love so much grow by your hand, self-development, drinking kneiter hard, and being allowed to share intimate feelings with a group of like-minded people. With the latter, friendship for life(suf) is born between 5'vo people. Below you can enjoy a hand full of the stories of one of the nicest boards the association has witnessed.'

How did it all start?

Juan: 'Cold and cosy! Being woken up by B4 while still drunk was quite funny, although I did not expect that five stroeve mensen in jacquets were suddenly at my door at 3 am.'

Marlo: 'When we were about to meet each other, nobody knew who exactly would be the 5th board. We were told to meet each other in 'Café de Sport', so to scout if Juancito would be on the board I asked him during the drinks: 'Are you going to sport tonight?' But Juancito said: 'No, I already sported yesterday.''

In the beginning we felt like we had quite a lot to do. However, we had no idea what we were actually doing. We did hit it off right away and, for instance during our pre policy weekend, we had the best time.

"To scout if Juancito would be on the board I asked him during the drinks: 'Are you going to sport tonight?' But Juancito said: 'No, I already sported yesterday.'"

Amaria: 'I actually missed the first few weeks in the hub since I went on family visit/vacation in South Africa because my grandparents were married for 60 years right after wisselweekend (changing weekend). I was afraid I would be out of sync with the rest, but it felt like I was never gone since we kept in touch and Marlo made a meme presentation of all the inside jokes of the board of the first few weeks.'

What were your goals when you started the year and what were your achievements when you finished the

year?
During our year we, as fifth board of S.V.N.B. Hooke, have put a lot of effort in making both international students and first year students feel welcome. We for instance translated a lot of documents of the association into English, and introduced first years to the association by making it attractive to come to the first few drinks with a 'borrel bonus card'. We feel like our work paid off since many first year students became enthusiastic and involved with S.V.N.B. Hooke. Sara: 'Also nice to see how they include each other by shouting the well known "English pleaaase!"'. Next to this we organised the very first Diffucie! And not only was our first big study trip to Scandinavia a huge success (educationally, amusingly, and especially financially), we organised it at the same time as Wnt, proving that Hooke was big and amazing enough at the time to organise two such trips at the same time.'

We also wanted to organise the first Hooke members weekend. This would later become Exon, with people taking part in the research of Centurion and exploring their artistic side when painting with Sara Ross. We thought exon was a lot of fun and we hope that many more generations of Hooke members can enjoy the atmosphere that we had.

Marlo: 'Hooke heeft nog nooit zo veel gezopen in een jaar, dat is onze legacy'. (Hooke has never drunk so much in one year, that is our legacy.)

What was your favourite thing in the hub?
We had plush friends, primarily to fidget with during the board meetings. There was Eagol, a unicorn sleeping mask neck cushion, Bloemkool, Hippo, and Sherpa the snowman. Something else which filled our board year with nice moments, from punishments to festive shot moments, was the cabinet under the sink where all the Ketel1 was stored. Amaria: 'If it is under the sink, take a drink!'.

"That's how we ended up watching Temptation Island instead with all the Hooke members that stayed for a different kind of lunch lecture."

Two random stories:
We once had a lunch lecture planned with a company that went bankrupt (multiple times apparently). They forgot to give us notice that the lunch lecture would not happen, didn't pick up the phone, and basically ghosted us. So there we were, suited up, with many many sandwiches, and many expecting students. We were quite frustrated that

we did a lot of work for nothing, so we decided to just do something fun with the many sandwiches and the big lecture hall we had. That's how we ended up watching Temptation Island instead with all the Hooke members that stayed for a different kind of lunch lecture.

Another time we wanted to treat ourselves and so we booked a wine tasting at Sara's house. This really (almost comically) overweight man stepped out of his van and asked one of us to help carry his briefcases with wine in them. When Sara got the briefcases out of the van, the Wijnjos thanked her because he could get really short of breath after his surgery: an angioplasty ('Ja ik ben net gedotterd...'). When he finally sat down, he chose a chair with four extremely thin legs that bent outward. He then took his hat off and started telling his many, many stories. He was extremely strict on what you could combine satésaus (peanut sauce) with: absolutely nothing. "Snackbars and restaurants will sell you perfectly fine pieces of meat and then they completely ruin it with that sauce." We learned so much that night

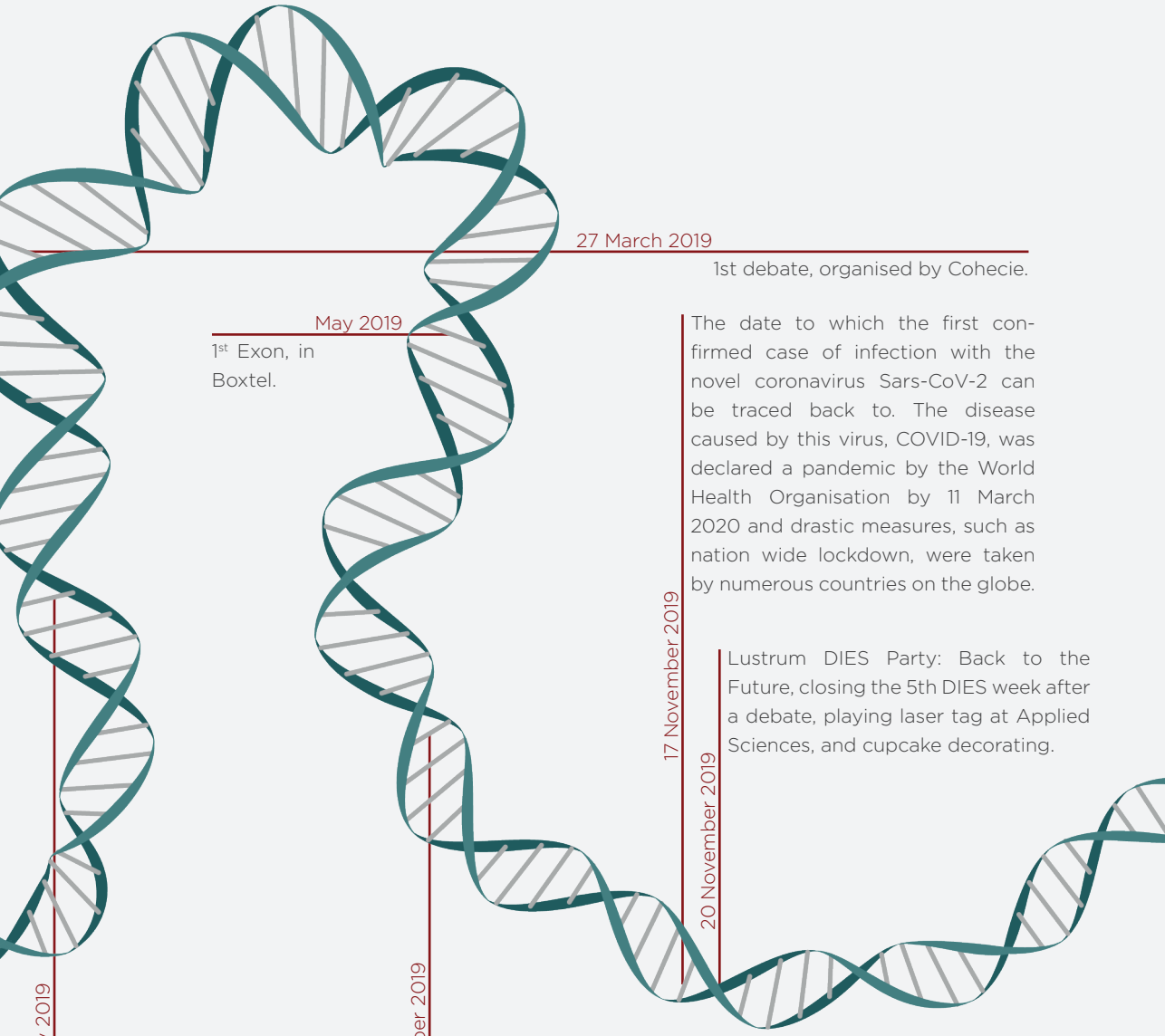
Did your board year change you personally?

Yes, I gained 4 new best friends <3 <3 <3 <3

25.000 euros on the Hooke account.

The board of 2018/2019 was constituted as follows:

Amaria Vledder - President
Brian Analikwu - Secretary
Marlo Neumann - Treasurer
Juancito van Leeuwen - Commissioner of External Affairs
Sara Okhuijsen - Commissioner of Education



February 2019

1st Diffucie to Denmark and Sweden.

12 September 2019

Opening of the first Lustrum.

May 2019

1st Exon, in Boxtel.

27 March 2019

1st debate, organised by Cohecie.

17 November 2019

The date to which the first confirmed case of infection with the novel coronavirus Sars-CoV-2 can be traced back to. The disease caused by this virus, COVID-19, was declared a pandemic by the World Health Organisation by 11 March 2020 and drastic measures, such as nation wide lockdown, were taken by numerous countries on the globe.

20 November 2019

Lustrum DIES Party: Back to the Future, closing the 5th DIES week after a debate, playing laser tag at Applied Sciences, and cupcake decorating.

13 December 2019

Hooke Lustrum Gala in Mill, Noord-Brabant.

BOARD 6
2019/2020

After 5 boards of S.V.N.B. Hooke, we had the privilege to be next in line. Excited and curious, we began our board year. During the first weeks, we learnt how to clean and refill the coffee machine, how to form a sandwich train (cutting and putting, yeeting and eating!) and that you can rely on your members for the latest news and well needed distraction. While keeping track of all the things Anna lost and turfing the times Meeks lost her focus, we had the pleasure to guide the association through its first lustrum year. We look back with smiles on our faces and a lot of emojis. We hope you will enjoy our stories as much as we do.

What did the first day at the hub look like?

Alex: 'Fiona and Rachel walked into the hub and said 'So, here you are', and I thought 'Yes, here I am...''

You were going to be the first lustrum year, what were your goals?

We wanted to both document and survive the lustrum year, so let's hope we don't get corona, haha. But more seriously; we didn't really know what to expect from the first Hooke lustrum. We did know that we were going to be an experiment, and we are trying to be of value for the future by analysing everything we do.

In addition to documenting and surviving, we wanted to reflect on the first five years of the association in this lustrum. That's where the idea of the lustrum book originally came from! Next to that we wanted to focus on the future. We were often looking multiple years down the line in our plans and goals, and putting Nanobiology on the map with the world record attempt was a part of that. It was also cool that the DIES week and symposium themes tied into that goal very nicely!

What was the best and the worst thing about organising a lustrum year?

It felt like there was more time and place to really experiment with events and to try to set up something big, like the world record or this lustrum book. On the other hand, it was also a bit restraining. It felt like we were expected to all of a sudden make everything bigger and better than before, while also organising the 'usual' things, even though bigger events also require a lot of resources like money and time. We did what we could, more would have just taken away from what we already had.

Anna: 'For me, the best moment was when we received the email from Guinness World Records saying that we could do the pipetting world record attempt. We were all at the hub, together with Stefan and Ellenoor of LUCA, and when we saw the email

we just started jumping around and screaming, we were so happy!'

How did you deal with the corona situation?

Well, the joke we made was that we will be known as 'the board that needed to be stopped by nature'. It was very sad to see almost all our plans and efforts for the second half of the year disappear like that. If we could have organised, for example, the world record attempt and closing lustrum festival, our year would have felt more rounded as a lustrum year. It would have also felt more like 'our year', as we would have influenced activities in the second half of the year more. On the other hand, we do have

"We do have the feeling that especially now we can make a real difference for our members."

the feeling that especially now we can make a real difference for our members by organising things online and providing them with the opportunity to meet and have fun. Committees showed a lot of enthusiasm in continuing their projects online. SNP managed to transform the symposium into an online symposium in under two months, which we believe is a great example of just how much we can achieve in this situation. ATP had barely started up when the lockdown started, and they also pulled off some nice activities for the members to enjoy. Next to this, we are trying to help the Nanobiology programme as best as we can. Anna is having daily meetings with the programme team and we are more involved than ever before. IntroN immediately started brainstorming enthusiastically about a way for the coming first years to meet and socialise online before the next academic year starts. We try our best to let the association run as normally and smoothly as possible, while keeping a positive attitude!

What advice would you give to B7 as a new board?

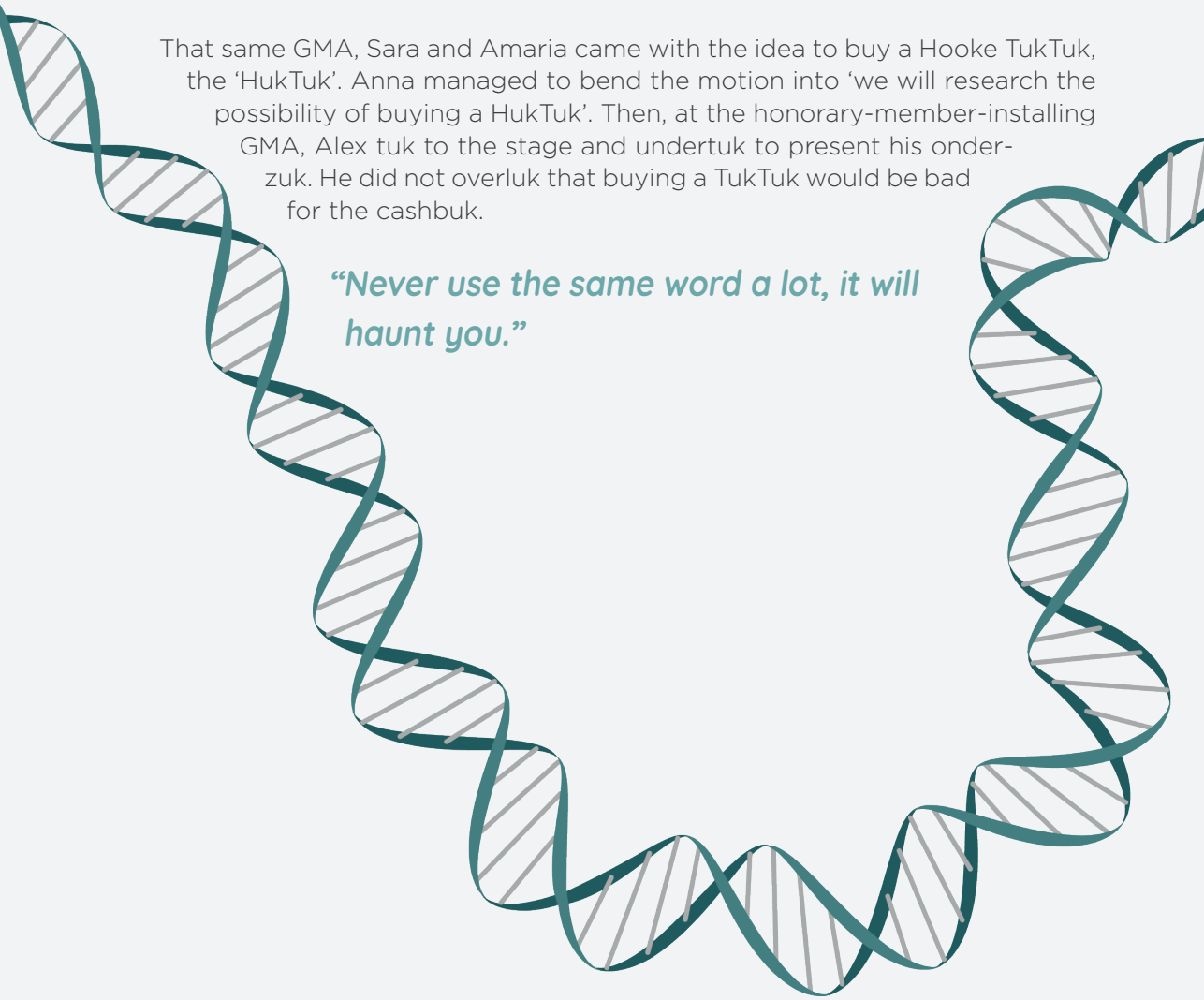
Be confident, and keep in mind that you're doing this for fun as well, next to all the development and association stuff. No activity or goal is more important than your own (mental) health, so take care of yourself and each other first! And a special tip from Anna: never use the same word a lot, it will haunt you.

Which GMA motion do you remember best and how did you deal with this motion?

At our second GMA, Brian's motion of 'only nano-related committee names' got accepted. We all thought this was a good idea, but then a few minutes later we had to install Aisha for IFBT...

That same GMA, Sara and Amaria came with the idea to buy a Hooke TukTuk, the 'HukTuk'. Anna managed to bend the motion into 'we will research the possibility of buying a HukTuk'. Then, at the honorary-member-installing GMA, Alex tuk to the stage and undertuk to present his onder-zuk. He did not overluk that buying a TukTuk would be bad for the cashbuk.

"Never use the same word a lot, it will haunt you."



The board of 2019/2020 was constituted as follows:
Anna Hartendorp - President
Aisha So - Secretary
Alexander Neutel - Treasurer
Anouk Dutrée - Commissioner of External Affairs
Annemieke Mathissen - Commissioner of Education

19 February 2020

Claire Wyman is installed as the first honorary member of S.V.N.B. Hooke.

27 March 2020

The members of Diffucie 2 meet for the first time, to work on 'Hooke's first hypothetical trip'.

1 May 2020

IntroN6 brainstorms about an introduction weekend: 'Salam! Welcome to the enchanted domain of the World-Wide-Web, we call: "the desert". Some say you can summon future nanobiologists there...'

21 April 2020

The 7th assignment of the Online Challenges hosted by ATP6 is released.

4 April 2020

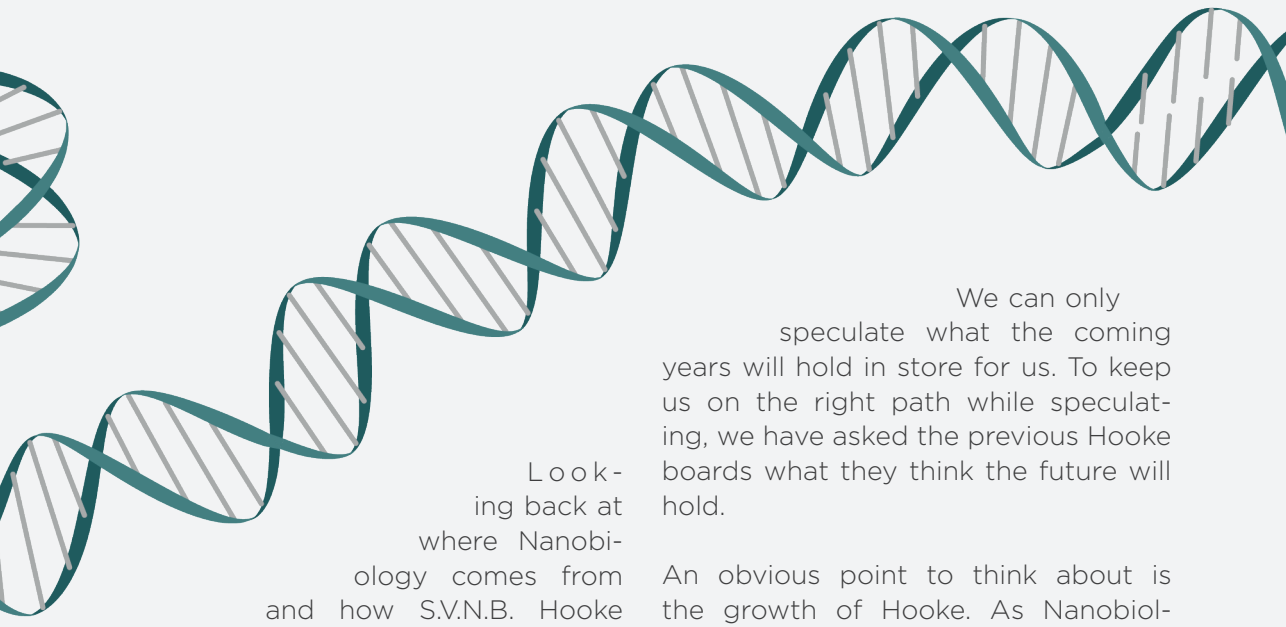
The second 'S.V.N.B. Hooke measures Coronavirus' email is sent to all members to officially cancel all Hooke activities until June 1st, including the symposium, world record attempt, and the multiple day excursion.

14 March 2020

Researchers from Erasmus Medical Centre and Utrecht University are the first to report an antibody that recognises Sars-CoV-2. The antibody helps stop the virus being able to infect and is thereby a promising step in the development of medicine which might cure COVID-19 and tests to detect the disease.

FUTURE OF HOOKE

THE NEXT STEP IN EVOLUTION

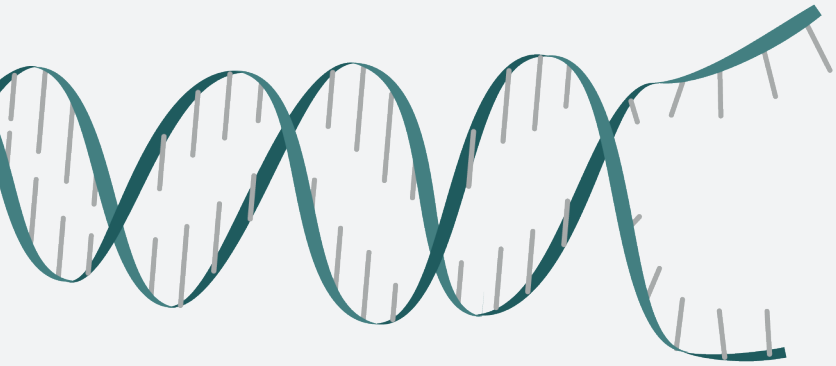


Looking back at where Nanobiology comes from and how S.V.N.B. Hooke was established is exciting and can change the way we look at the present state of things. However, predicting what the future entails for the study programme and its study association is maybe even more fun. When asked 'Where do you think Hooke stands at its next lustrum?', everybody will have different answers, some even contradicting, making it difficult to make an accurate prediction.

We can only speculate what the coming years will hold in store for us. To keep us on the right path while speculating, we have asked the previous Hooke boards what they think the future will hold.

An obvious point to think about is the growth of Hooke. As Nanobiology grows, so will Hooke. An increase of students admitted to the Nanobiology bachelor programme will result in Hooke gaining more members. This would mean that the activities could be scaled up; a Multiple Day Symposium, an intercontinental Diffucie, or an annual edition of dsDNA (but for now, we can only dream...).

Additionally, with the growth and aging

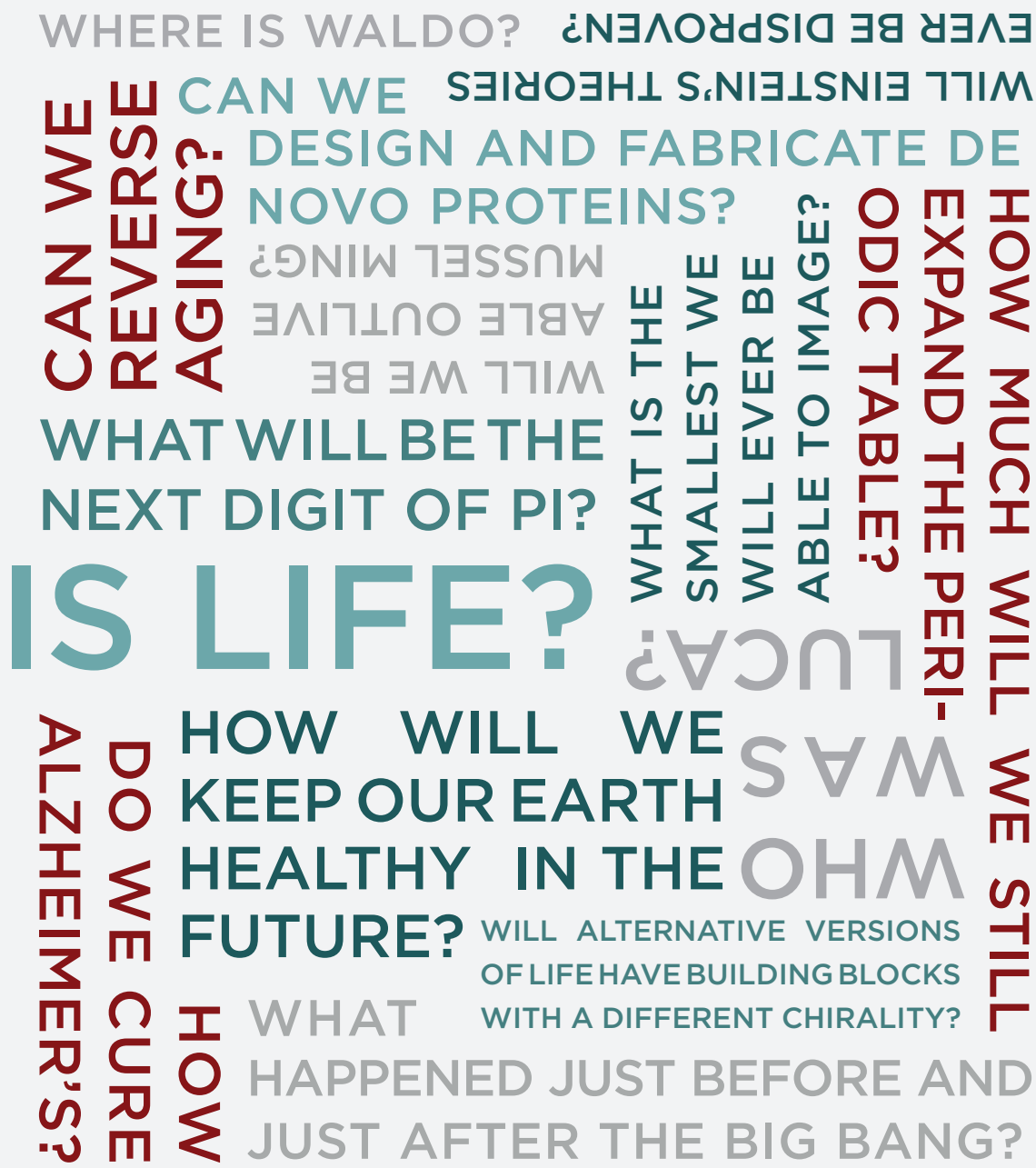


o f
Hooke, the number of alumni will increase. Currently, Hooke has fewer alumni than members, but at some point, this will change. The upcoming boards will have to find a way to keep the alumni hooked to Hooke. This way, the future members can learn from alumni by visiting their companies and listening to their stories, and Hooke's network will expand year after year.

While Hooke will grow both literally and figuratively, some things will hopefully stay the same: the willingness of people to help each other, the 'ons kent ons' mentality, and the engagement of members with the association in general, are aspects that make this association so lively. Committees such as S.O.S. and Exon are the result of the involved mindset and never ending stream of input; both were introduced at members' suggestions. This is what makes Hooke Hooke, and hopefully, we can keep up this mentality while Hooke continues to grow, develop, and flourish. As more and more Nanobiologists graduate and get out into the field, we also hope to see them remaining this close network with each other, just like they are now, willing to help each other out.

REMAINING QUESTIONS

TO KEEP NANOBIOLOGISTS BUSY


WHERE IS WALDO?
EVER BE DISPROVEN?
WILL EINSTEIN'S THEORIES
CAN WE
DESIGN AND FABRICATE DE
NOVO PROTEINS?
MUSSEL MING?
ABLE OUTLIVE
WILL WE BE
CAN WE
REVERSE
AGING?
WHAT WILL BE THE
NEXT DIGIT OF PI?
IS LIFE?
WHAT IS THE
SMALLEST WE
WILL EVER BE
ABLE TO IMAGE?
LUCA?
ODIC TABLE?
EXPAND THE PERI-
HOW MUCH WILL WE STILL
WAS
WHO
HOW WILL WE
KEEP OUR EARTH
HEALTHY IN THE
FUTURE?
WILL ALTERNATIVE VERSIONS
OF LIFE HAVE BUILDING BLOCKS
WITH A DIFFERENT CHIRALITY?
ALZHEIMER'S?
DO WE CURE
HOW
WHAT
HAPPENED JUST BEFORE AND
JUST AFTER THE BIG BANG?

CYTOP

The cytoplasm is a place in the cell where everything is possible. At a first glance it seems as though there is all but chaos. A closer look, however, shows that highly complex order rules. Proteins, nutrients, cytosol, lipids, granules, they all find a place in the meeting point of the cell. The cytoplasm stands for diversity, movement, fluidity. It creates a place for all the cellular components, except for the nucleus and the membrane. The majority of the cellular reactions take place in the cytoplasm and without it the cell would be nowhere!

The cytoplasm is found almost everywhere in the cell, and is not just definable as one specific thing. The cytoplasm is dynamic and it is diverse, and so is the cytoplasm depicted in this book. Facts about the association, pages made by members, the items displayed on the table during the General Member Assemblies, and many more subjects are floating around throughout the entire book. The cytoplasm can be recognized by its specific lay-out as you see on this page and will be present all around the organelles. The cytoplasm may look chaotic at first, but is an essential part for the survival of the cell, in the same way that the subjects presented in the cytoplasm are essential for S.V.N.B. Hooke!

LASM

ROLAND KANAAR

SUBTITLE

When thinking about “synthesis” the central dogma of molecular biology is the first thing that pops in my mind. Synthesis of nucleoside triphosphates into DNA and RNA and amino acids into proteins, all directed by hydrogen bonding. I still marvel at how the multi-disciplinary field of Molecular Biology figured all this out.

Molecular Biology arose from the synthesis of groups of scientists interesting in two different aspects important for biology; structure (shape, form, function) and flow of information.

The structuralists used the concepts of physics and mathematics to derive the structure of biological molecules from determining the relative position of their atoms.

The informationists took on the challenge of solving the mystery of how information flowed in biology to sustain life, with a focus on the “gene molecule”. As opposed to the structuralist strand of Molecular Biology, for the informationist strand, the link between biology and existing laws of physics was less obvious.

The development of the quantum theory of atomic structure by Niels Bohr in 1932 had resulted in “new physics”. Marveled by its complexity physicists were drawn to biology because they were convinced that in order to understand life “other laws of physics” would be required.

We now know that there was no new physics in biology. Leading Gunther Stent to express his disappointment when he wrote about the central dogma in Molecular Biology “Making and breaking of hydrogen bonds seems to be all there is to the workings of the hereditary substance”.

I, for one, are not disappointed at all, but all the more awe struck by biology and how its complexity can arise from such simple principles, embodied by a chemical bond involving one of the first atoms to arise after the Big Bang. The synthesis of life is ancient indeed.

HOOKE QUANTIFIED

SOME NUMBERS

Favourite scientist:

Robert Hooke	75	21	Isaac Newton
Charles Darwin	63	24	Gregor Mendel
Albert Einstein	56	35	Stephen Hawking

Favourite model organism

Caenorhabditis Elegans	26%
Arabidopsis Thaliana	14%
Drosophila Melanogaster	40%
Xenopus Laevis	20%

Bachelor courses: 49
Master courses: 16
Committees: 20

Would you rather

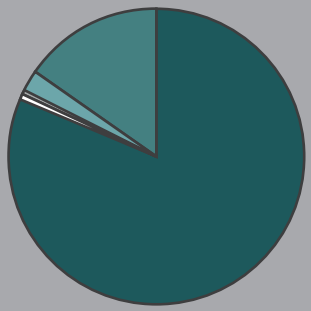
have an extra month of quarantine **32 | 44** retake S&S

mRNA's made: 14
Distance EMC-TNW: 11 km
Capacity de Steck: 330

Favourite nucleotide

1. A (42%)
2. G (27%)
3. T (19%)
4. U (8%)
5. C (4%)

- Members (416)
- Alumni (77)
- Associate members (13)
- Members of merit (2)
- Honorary member (1)



HOOKE ITEMS


THE SPINDLE BOOK
NANO
NEVER-LAND
Nanobiology Students 19/20
LISTRUM HOOKE

HOOKE QUANTIFIED

FUN FACTS

When the registration for becoming member of S.V.N.B. Hooke opened, Kasper Spoelstra became the first member of Hooke, just because he stood first in line.

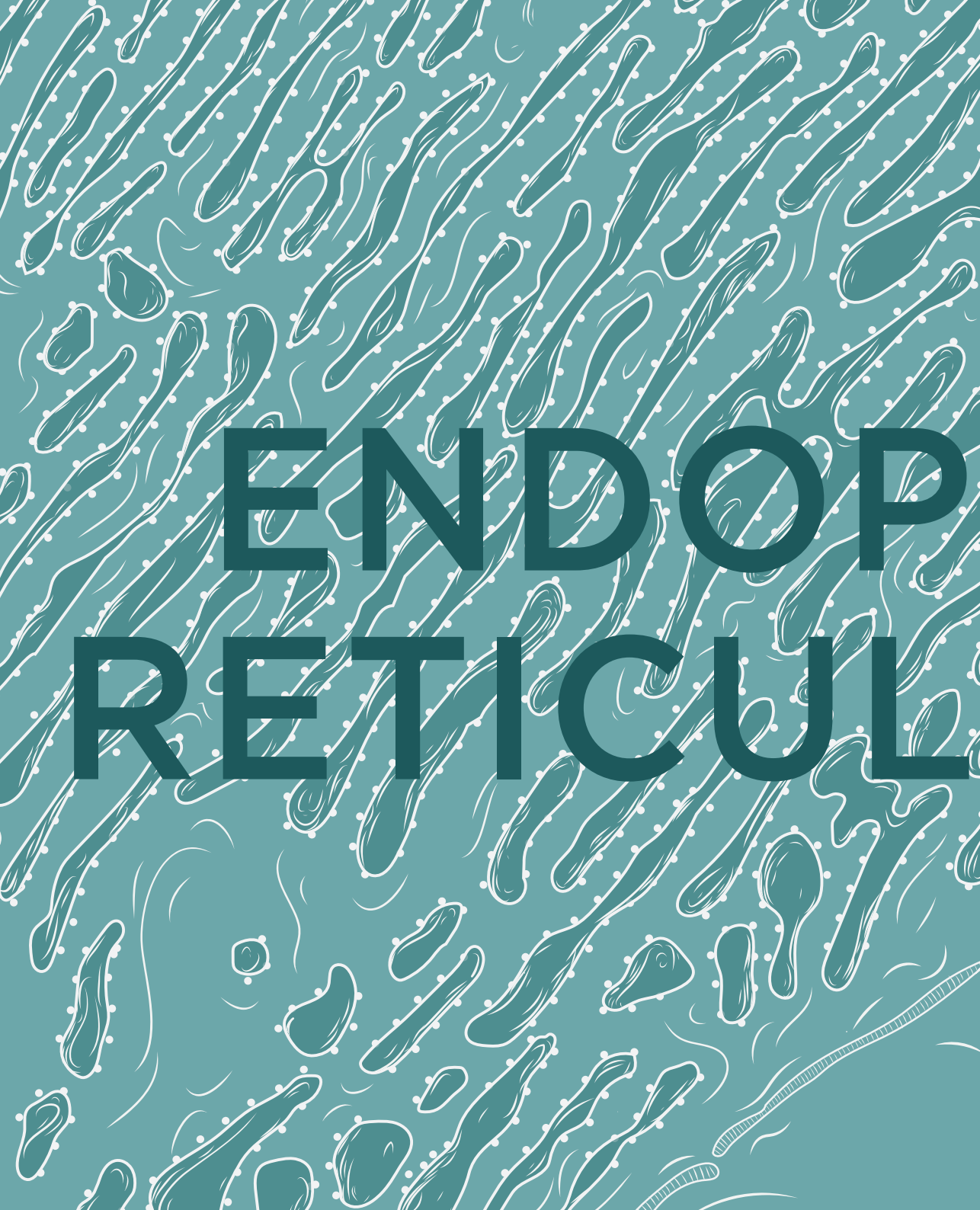
In its very first year, Hooke did not have a bar yet, and so the borrels were organised on different days at different locations throughout Delft, such as at TKPV, Virgiel and the V-hall of VvTP.

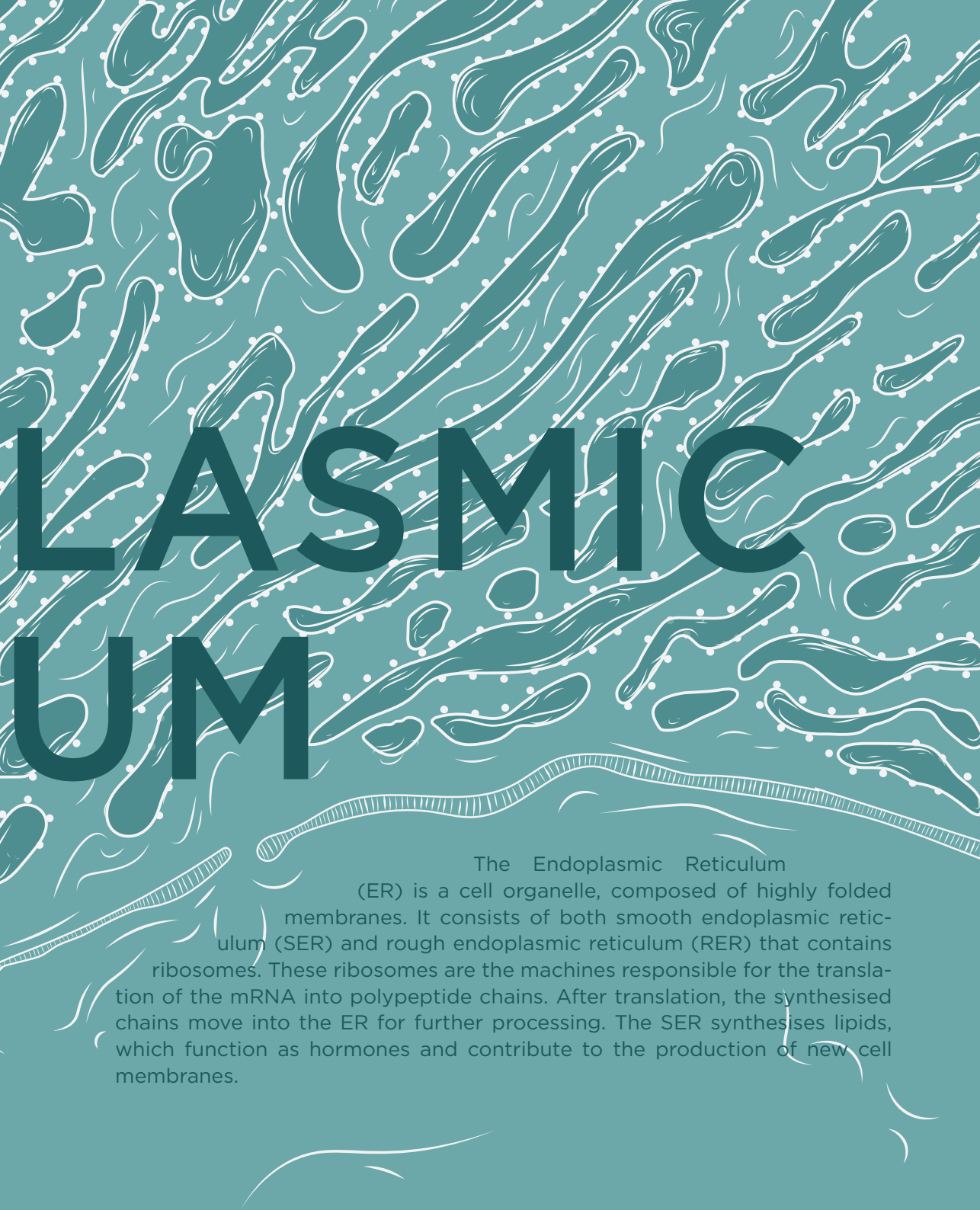
Board 6 was obliged by a motion in the second GMA of their year to look into buying a tuktuk as association vehicle.

Up until now, all presidents have been female and all treasurers have been male.

Brian Analikwu put forward the motion that all new committees should have a nanobiology-related name and this motion was agreed upon by a large majority. A few moments later however, the Nanobiology delegation for the IFBT had to be installed, and no proper name was there yet...

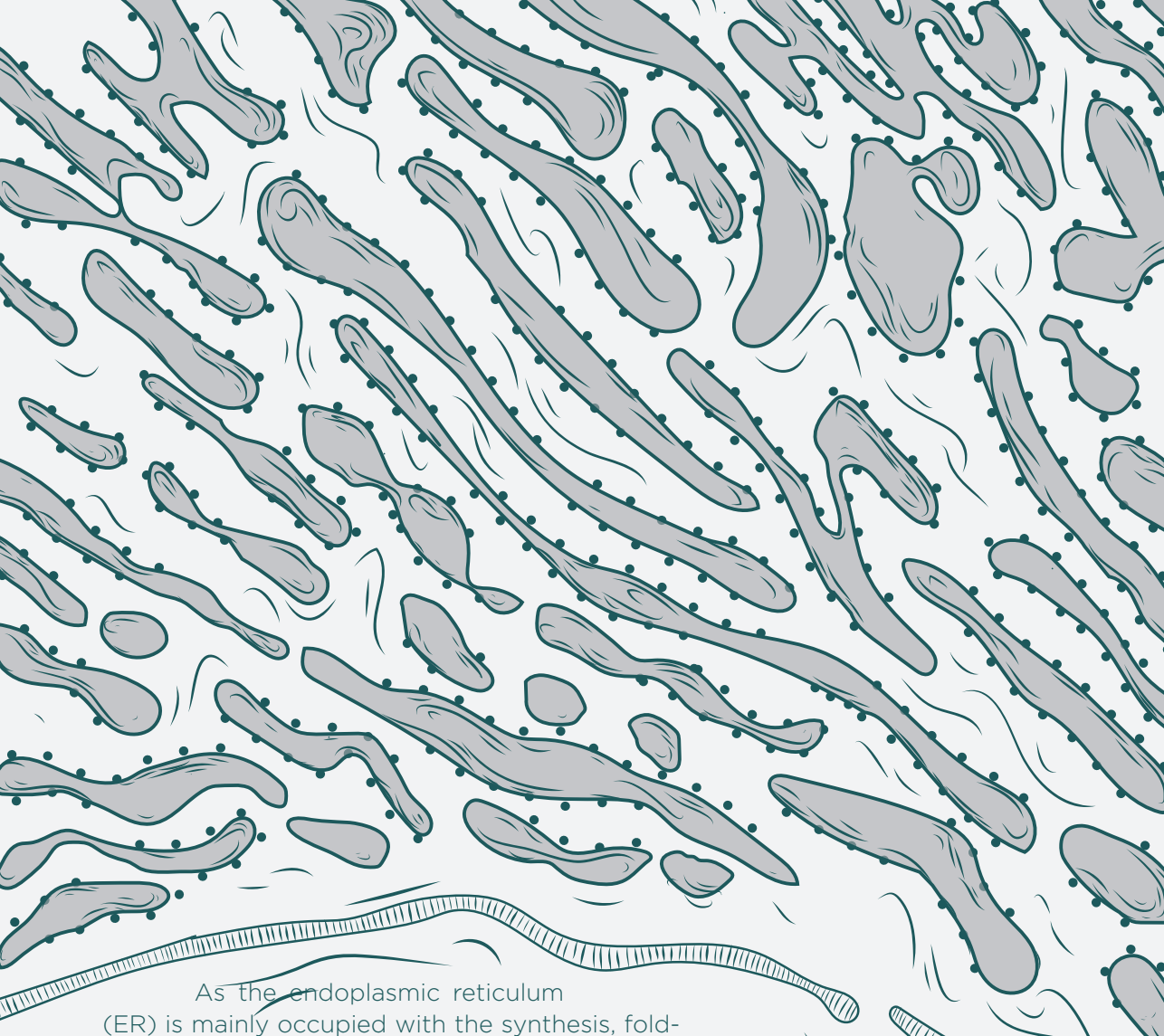

Studievereniging
Nanobiology Hooke


ENDOP
RETICUL

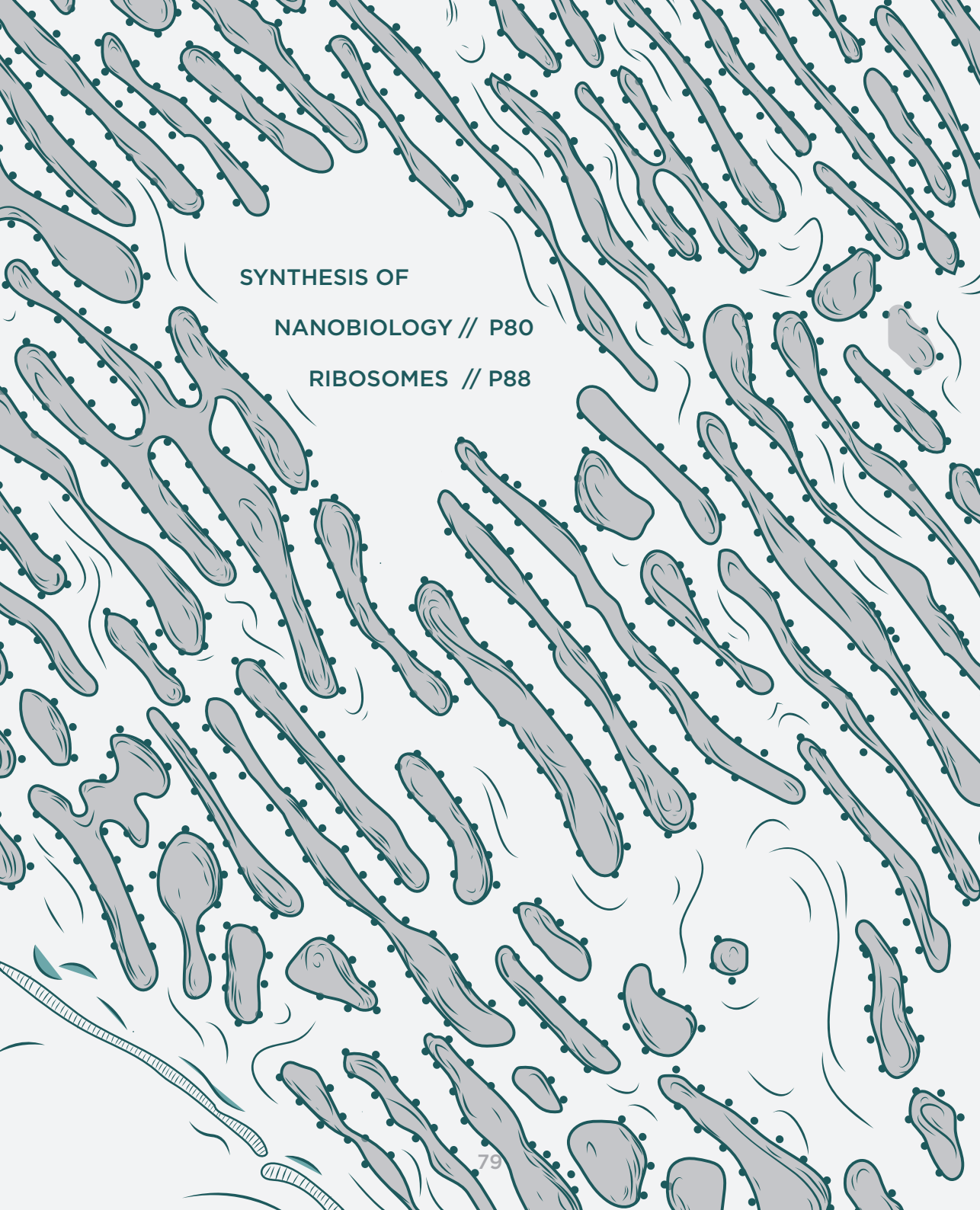


LASMIC UM

The Endoplasmic Reticulum (ER) is a cell organelle, composed of highly folded membranes. It consists of both smooth endoplasmic reticulum (SER) and rough endoplasmic reticulum (RER) that contains ribosomes. These ribosomes are the machines responsible for the translation of the mRNA into polypeptide chains. After translation, the synthesised chains move into the ER for further processing. The SER synthesises lipids, which function as hormones and contribute to the production of new cell membranes.



As the endoplasmic reticulum (ER) is mainly occupied with the synthesis, folding, modification, and transport of proteins, the analogy with the staff of the Nanobiology programme was easily made. The ER makes sure that proteins are correctly formed and packaged to be sent to a Golgi Apparatus, where their destiny will be determined further. In a similar way, the teachers and staff help us experience the endless possibilities within their own expertise, so that we can make a considered choice in the rest of our careers. In this chapter, we will highlight those teachers and how the Nanobiology programme came to existence.



SYNTHESIS OF

NANOBIOLOGY // P80

RIBOSOMES // P88

SYNTHESIS OF NANOBIOLOGY

CLAIRE WYMAN AND CEES DEKKER

Cees and Claire have been collaborating in science for almost 20 years now. We wanted to know more about the start of the Nanobiology programme and, as you will read, they were the designated people to talk to.

Prof. dr. Cees Dekker was, until recently, the director of the Kavli Institute of Nanoscience Delft. He leads his lab, conducting biophysics research from protein sequencing to synthetic cells, to chromosome structure. Cees did not start his career as a biophysicist, though. Only around the year 2000, after his renowned research on nanotechnology and carbon nanotubes, Cees became interested in doing research in the rising field of biophysics. At that time, there was no biophysics research conducted in Delft yet, but there were a lot of physicists all around the world, like Cees, interested in biology from a (nano)physical perspective. When Cees developed his interest in biophysics, he was entirely new to the field, so he started to investigate what interesting research there was in biology in nearby cities, and with whom he could cooperate. He found Prof. dr. Claire Wyman, who had recently moved to the Netherlands and started to work at the Department of Molecular Genetics at the Erasmus Medical Centre in Rotterdam. Claire was a pioneer applying the newly developed scanning force microscope to molecular biology research, specifically revealing the working of nanomachinery involved in DNA replication, transcription, and repair mechanisms. Claire later became the academic director of the Nanobiology bachelor programme and S.V.N.B. Hooke's very first honorary member.

Cees started setting up a biophysics group that later turned into the department that we now call 'Bionanoscience', at the Applied Sciences faculty of the TU Delft. This department was officially established in 2010. The fields of biology and nanophysics were starting to come together at that time, and this new department was at the forefront of the development of the biophysics field.


TU Delft Faculty of
CANADA

Cees and Claire had both formed research groups including physicists as well as biologists. This made them realise that it would be more convenient to educate students in both fields from the start of their studies.

Cees: 'The success of that research collaboration prompted the idea that this combination of physics and biology could work, and that it had the potential to be super powerful in science.'

Despite their fully established fundamental research department, education in the Erasmus Medical Centre was not aimed at fundamental science. Claire: 'Scientists at the EMC missed out on the opportunity to teach the subjects they loved and to meet students that were interested in joining our research teams.'

All these factors; the desire for fundamental education in the EMC, the new department in Delft, the need for an education programme that would combine different skills, added to the fact that both universities were looking for ways to strengthen the bonds between the TU Delft and Erasmus, converged in a great opportunity to start this programme. Many people shared the wish for a new education programme, and their enthusiasm contributed a lot to the process of setting it up. Cees also emphasised that Claire has been a driving force leading a community to turn these goals into reality.

What do you need to set up a new degree?

Claire: 'Our initial idea took shape in 2010 and the first students started in September 2012. A lot had to happen in those two years. First, we needed to find support within the science community and at both universities. We got a lot of support from many people, but many trade-offs needed to be made as well. David Grünwald, an Assistant Professor in Delft who was very involved in setting up the programme, once said: 'Everybody had to give up their favourite topic'. Teachers did realise that compromises had to be made: our students needed to be taught well, not necessarily everything on every topic. Students should be handed the tools to pick up the other skills themselves when they need them. More and more people were added to the Nanobiology team in the process, as our task package kept growing.'

Cees: 'Since this was a programme that we built up from scratch, we had the opportunity to really work out what we thought students would need and how different kinds of skills and knowledge should be integrated. We were way more flexible in designing the programme than we could have been in, for example, modifying an existing

FLEUR KRUIJSDIJK

OUR FORMER ACADEMIC COUNSELOR

Once upon a time... al small group of enthusiastic and 'free-of-mind' thinking people. They came up with the idea to start a cooperation between a technical university in a cute little village and a medical centre in a big modern city which has been praised for the outstanding facilities and education of medical students. These people knocked on the doors of both institutions to inform everyone that they had come to life and that they would like to join these worlds in order to create a new connection.

The first reactions were kind. Most new colleagues were welcoming but also hesitant to this strange bunch of people. Why did they do things in different ways than everyone was used to. Why did they make their own new rules? 'We do have traditions', both institutions must have thought. But the Nanobio-guys, as they called themselves, seemed to go along and find their own new ways.

The funny thing was that on their way more and more 'open minded' and bright people wanted to join this new wave of enthusiasm. It attracted very different types of scientists, students, other staff that wanted to become part of the caravan which travelled between Delft and Rotterdam.

When I look back at the beginning of the extraordinary Nanobiology program I realize the uniqueness of this 'people-driven'

programme. During this process, the general "just do it" mentality from both universities helped us a lot!'

Claire: 'Next to our own agreement on the programme contents, the programme also needed to be accredited (acknowledged). This is a very difficult process and the approval percentages when we started were only around 10%, but we succeeded!'

Why do you think Nanobiology received accreditation right away?

Claire: 'Only one in ten programmes actually succeeded in this. On top of that, the government had an official policy at that time which resulted in them not being in favour of interdisciplinary programmes in general. This made the process even riskier and more challenging. There was also a general fear that our programme would attract students away from the Life Science and Technology programme at TU Delft and Leiden University.

The decision to accredit a programme is made by various organisations associated with the government. You should be able to justify the overall importance of your programme in order to receive this. It is important to demonstrate that there is a need for an educational programme, that this new programme is different from programmes that are already existing, that students are interested in this programme, and that there will be a future for those students. We were able to collect enough information to justify those statements and convince these organisations that this programme would be valuable, even though it is interdisciplinary. In 2012 our programme started with way more students than we had ever expected and LST had a record number of students as well!'

Cees: 'It's remarkable that the Nanobiology programme is still quite unique internationally. It is recognised that this programme is a success and this interface between biology and physics is very interesting. Why don't other people pick this up?'

Claire: 'I'm also not sure why there are not many more programmes like ours. Maybe it has to do with the difficulty of making compromises and convincing other people that your idea is a good one. As said, the attitude and support that we met were very helpful. But I don't know... In some countries, like the U.S., education is more flexible. They say they don't need Nanobiology because you could already take both biology courses and physics courses at the same time. That is not the same of course and colleges in the U.S. would have often preferred a programme like ours. It could also have to do with the conservativeness of many institutions.'

SERGE DONKERS
OUR FORMER PROGRAMME COORDINATOR

A race against the clock, some very valuable classified documents, only 24 hours to complete the mission, a transfer, and a lot of motorbike action through suburban outskirts.

The perfect format for a new Mission Impossible movie. But no... These are the ingredients of a scenario that actually happened on a cold Friday in 2013, the day before the first (propaedeutic) Nanobiology graduation ceremony ever. The days before that specific Friday had been hectic. The central administration had problems with the diploma formats, but that could be solved in time. We had bigger problems: the embossing of the Erasmus University logo could not be prepared by the printers that would print the diplomas. Just three days before the graduation, a printer in Rotterdam promised us to make the embossing. On the specific Friday, with a stack of diplomas, I first visited the chair of the Board of Examiners at her home, to get the necessary 80(!) signatures. Next stop: Rotterdam. It rained heavily and I missed the location of the printer several times. Eventually I found the place where the embossing got done. I could manually(!) print it on every diploma. Next stop was easy: the EUR. There, I collected the Erasmus stamp that also had to go on every document before I could head of to my final destination for the transfer. In a dark and damp The Hague I was just in time to hand over (dry!) diplomas with all their required stamps and signatures to ensure a successful first-ever Nanobiology graduation!

Cees: 'Yes, that is very likely. Once a university has a fully established biology programme and a fully established physics programme, it's way more comfortable to add some physics to the biology and some biophysics to the physics. To really start from zero, as we did, is less frequently done.'

What does the future entail for Nanobiology?

Claire: 'I think the content will stay similar since it is very fundamental knowledge, but the focus might change. When Cees and I started, single-molecule biophysics was a hot topic. While this is still exciting, new things are coming up: new technologies, new datasets, new questions. But the skills that students learn in terms of fundamental maths, physics, and biology, can still be applied to those.

One technical thing about the setup of the education that we wanted for many years is to integrate the course content more. We want to emphasise that the knowledge that students gain throughout the years is connected and cumulative, by for example interdisciplinary courses.'

What were your most special or precious moments in this whole process?

Cees: 'I think for me the most special moment was the moment of accreditation. It sounds super formal, but at that moment, Nanobiology turned from just an idea into something that would actually happen. It is 2020 now and the programme is fully established and acknowledged.'

Claire: 'For me, there are two clear special moments. The first is the day we had a room full of students for the first time. I then realised: 'OK, it is real'. The second is the first bachelors' graduation; the moment I saw the students at the graduation succeeding in many different ways. Those were students that got the chance to study a programme that they knew nothing about. They jumped off the cliff with us and they helped us change the programme on the way.'

RIBO SOMES

The teachers of our programme are similar to the ribosomes of the endoplasmic reticulum: they help Nanobiology students form an academic foundation before those students get sent off to the Golgi Apparatus (outside world), and develop themselves further.

'If I have seen further it is by standing on the shoulders of Giants.' - Isaac Newton

JEROEN BASTEMEIJER

Your favourite moment during lecturing your course

The moment when a student makes the transfer from consuming and reproducing theory to understanding theory.

DAAN BRINKS

Favourite famous scientist and their contribution to science

Alan Hodgkin and Andrew Huxley, for the Hodgkin-Huxley model of initialization and propagation of action potentials, a triumph of predictive biophysics.

FOKKO VAN DE BULT

Most beloved and/or most used formula/law of maths

I will go for a math formula: Cauchy´s theorem:

$$\oint_\gamma f(z)\,dz = 2\pi\imath \sum Res(f, a_k)$$

NYNKE DEKKER

Favourite famous scientist, and their contribution to science

I really like how the rules of quantum mechanics help to explain the periodic table. I don't know whether it was one particular person who contributed especially to this, though.

RICARDO FODDE

Favourite quote from a famous scientist

'All biologists know that variation itself is nature's only irreducible essence. Variation is the hard reality, not a set of imperfect measures for a central tendency. Means and medians are the abstractions.' - Stephen Jay Gould

MARGREET DOCTER

Favourite moment during lecture

The sparkling moment when a student gets the theory, and is ready to apply it to anything new.

Favorite type of microscope

TIRF microscope.

TIMON IDEMA

Your favourite moment during lecturing your course
When students ask a question to which we do not yet know the answer.

Most beloved and/or most used formula/law of physics
The combined first and second laws of thermodynamics:

$$dE = TdS - pdV + \mu dN$$

ROLAND KANAAR

Your favourite moment during lecturing your course
Seeing the look on students faces when they get the idea behind questions, that require a bit more insight into the material, in the problem sessions for the course NB1016 (Molecular Biology).

LIEDWIJ LAAN

Your favourite organelle
It is not really a organel, but anyway: microtubules, because they bridge the molecular to the cellular scale.

If you could only use one type of microscope for the rest of your scientific career, you would choose
Spinning disc confocal fluorescent microscope.

DIMPHNA MEIJER

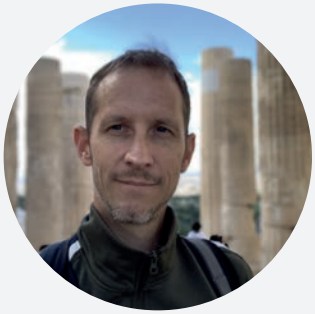
Your favourite moment during lecturing your course

The day I delivered my first lecture, which happened to be for the Nanobiology students

MARIO NEGRELLO

Favourite quote from a famous scientist

'I've made a big effort to avoid mathematical equations. This is only in part because I seldom manage to get equations right. My deeper motivation is a feeling that numerical exactitude is alien to the diversity of organic evolution, and pretense of exactitude often obscures the qualitative essentials that I find more meaningful.' - Arthur Winfree



JOHN MARTENS

Most beloved and/or most used formula/ law of physics

None, I just need the letters GATC.

Your favourite organelle

Any; as long as it contains nucleic acids

ERIC VERSCHUUR

Most beloved and/or most used formula/law of physics

Given my two favourite scientists: Hooke's and Newton's laws together create the acoustic wave equation. Despite being scientific rivals, this blend of the two basic equations describe the motion of particles in air and fluids to create acoustic waves.

BERND RIEGER

Favourite quote from a famous scientist

'Gott würfelt nicht.' - Einstein

Most beloved and/or most used formula/law of physics

Fourier transformation

CLAIRE WYMAN

What do you think the future of the nanobiology field entails?

Nanobiology will make significant contributions to the evolution away from describing living things as a vast collection of parts (proteins, genes, mRNA) and toward describing living things in terms of interconnected dynamic systems in a way that is accurate quantitative and usefully predictive.

BART VAN DEN DRIES

Your favourite moment during lecturing your course

Sometimes students´ questions reveal ways to look at things I had not considered before. Whether those questions originate in misconception or insight, they always lead to interesting, unforeseen discussion. I love that!

JOS THIJSSEN

Favourite quote from a famous scientist

'You don't get rich from doing physics, but you do get an opportunity to go to all the places the rich would go to if they had the time.' - Per Bak

Most beloved and/or most used formula/law of physics

No favourite, love them all.

JOYCE LEBBINK

Favourite famous scientist and their contribution to science
Rosalind Franklin, for her contribution to the discovery of the structure of DNA.

Your favorite organel
Nucleus

JOHAN DUBBELDAM

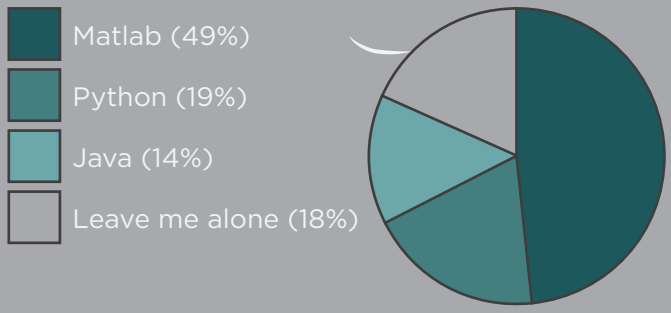
Favourite famous scientist
Galileo Galilei, we share the same birthday.

Favourite quote from a famous scientist
'I have never met a man so ignorant that I couldn't learn something from him.'
- Galileo Galilei

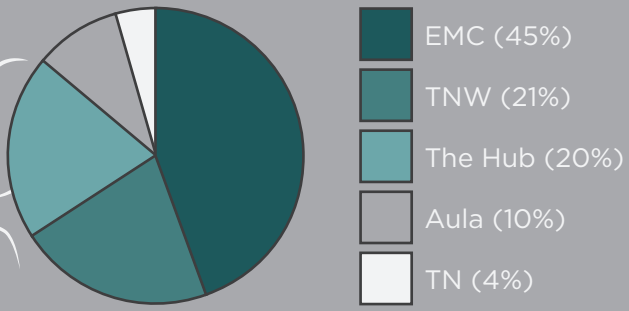
HOOKE QUANTIFIED

SOME STATS

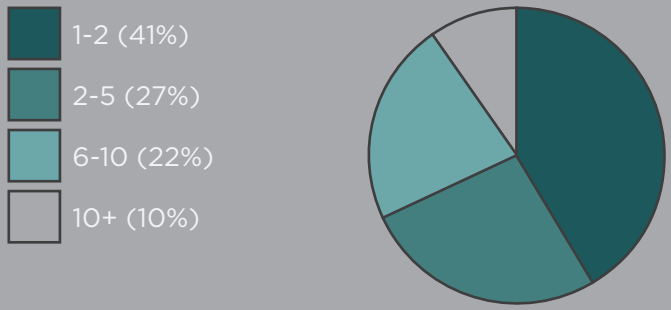
Favourite programming language



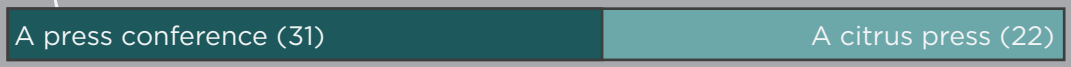
Best place to get coffee



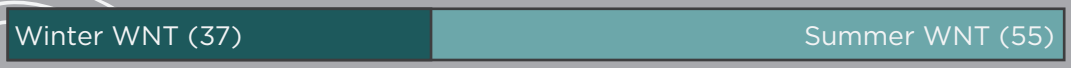
Number of GMAs attended



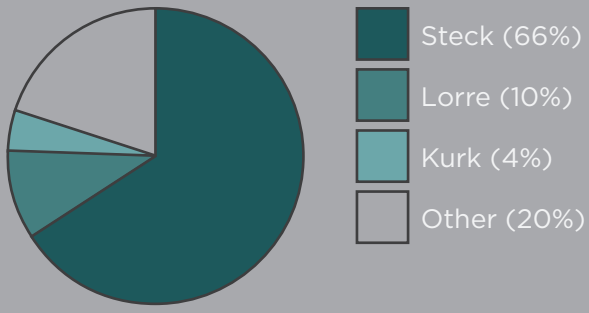
What do you call a gathering of citrus fruits?



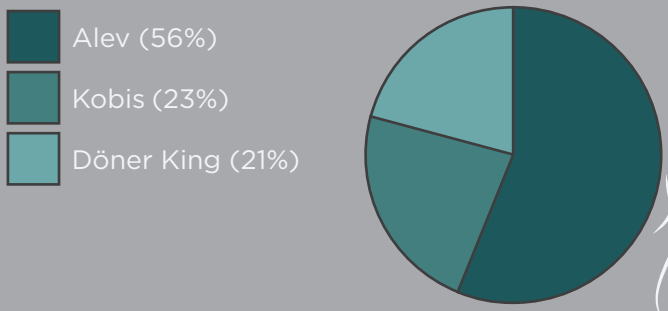
Skiing or surfing?



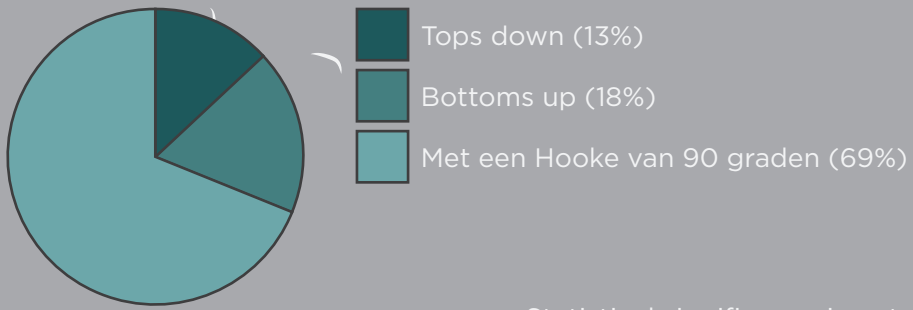
Favourite place to go clubbing



Best after-clubbing “cuisine”



Favourite way to drink



Statistical significance is not guaranteed.


Influencer
Carnaval
BREDA
De Glittergleufjes


Spooky?
01:39
Sabine Potusch
Birth is a curse
and existence is a priso
FUCK

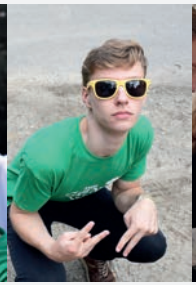

Congratulations!
Only old men think that men are better than women these days!
O.V. Tijger
20-04-1969
24-09-2020
3528 0200 1202

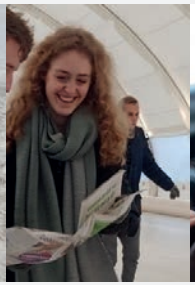
Wat is Puntloos? Dit is puntloos… *"En dan noemen we onze vereniging 'Puntloos' omdat het puntloos is" ~Ilse.* Delftsche Studenten Dart Vereniging Puntloos finds its roots in darts, without having darted more than once.

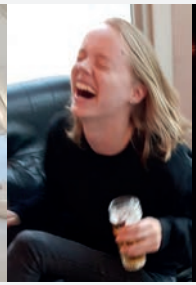
The association owes its joy and success to the many committees like Paasloos, Bloedloos (join @ bloedloos@gmail.com), Potloos, Puntloos, Framboos, Aoeqjwkiia (Sqqein by wwb aryj ub gwr qiwqhqjuuq), Hopeloos & Domloos. I think I've addressed most points now and now for the most important part: Reading is chugging.

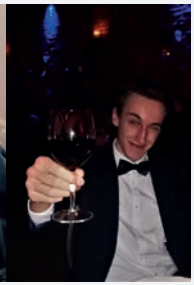
De Leden


Bastiaan van Dijk

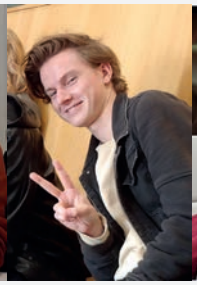

Daan te Rietmole

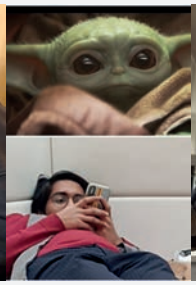

Ilse Klinkhamer

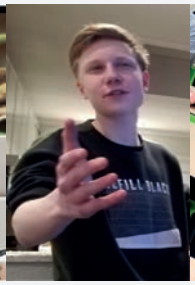

Marit Verheij


Mart Groenendal


Matthijs van Driessche


Max Kaag

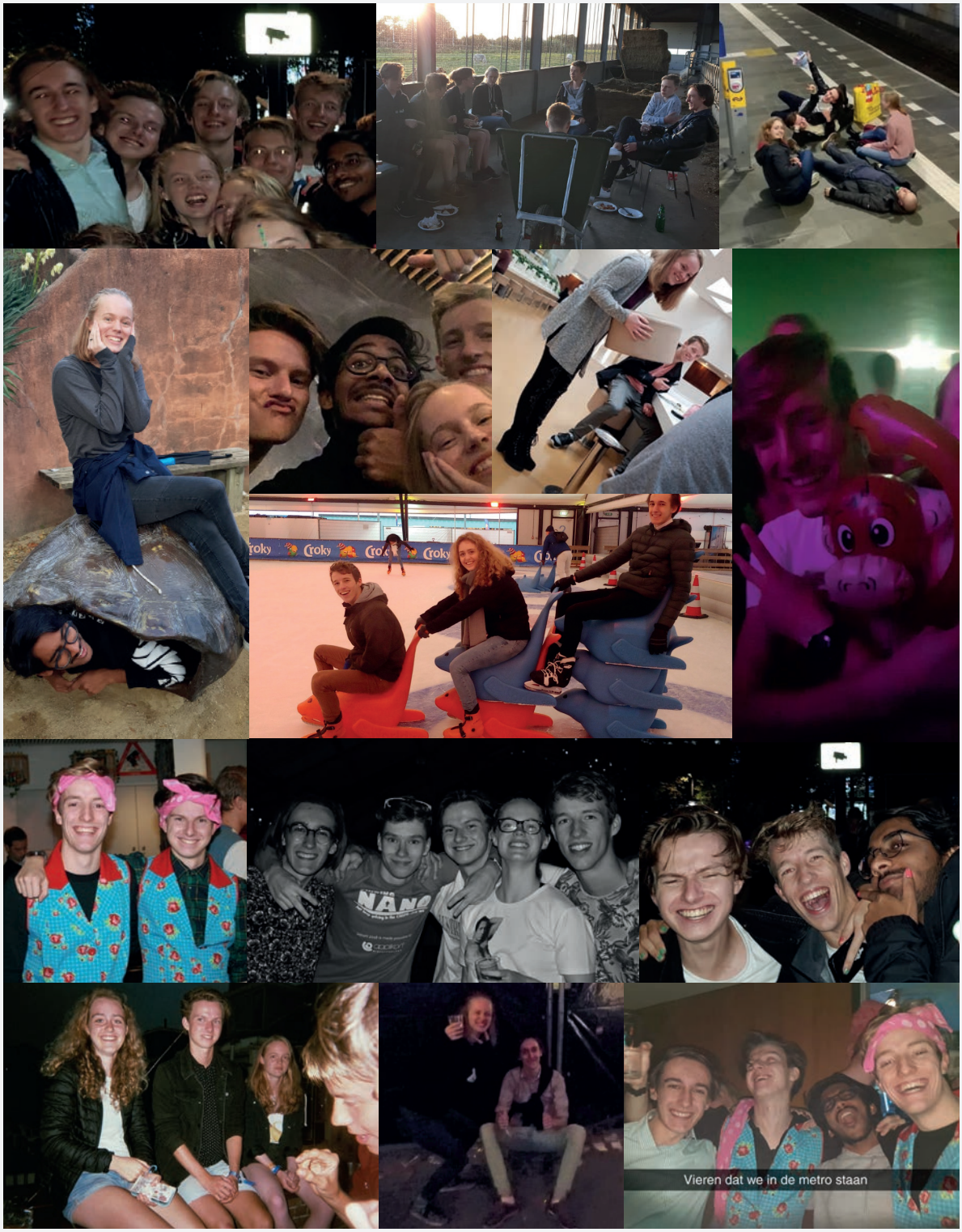

Ritik Mehta


Stijn Brevink


Youri van Elswijk a.k.a Hanckerman

"Eigenlijk had ik meer moeten drinken want de volgende ochtend had ik hoofdpijn" ~Maxoe
"Als je een dag ziek bent moet je goed doordrinken" ~Matthijs
"Hoe langer we over onze bachelor doen, des te langer we bij elkaar blijven" ~Daan

"Ben je dom of doe je dom?" ~Ritik
"Ik ben een pro met Marits PyMol" ~Maxoe
"Doe niet kakker als je pauper bent" ~Groenendriesch
"Nu komt de logica de aap uit" ~Marit
"Een auto zonder remmen kan nog prima rijden" ~Mart
"Studeren is feesten maar feesten is ook studeren" -MG
"Alles vo?" ~DSDV Puntloos
"18 minuten" ~Martels
"Wachtrijst" ~Bats


Croky
Croky
Croky
Croky
NANO
Vieren dat we in de metro staan

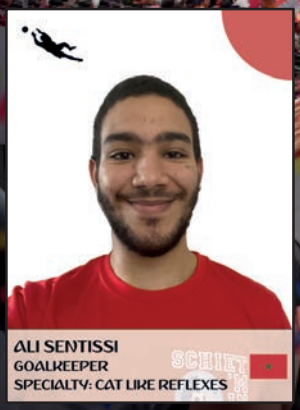
Schiet 'm in de Hooke

TOP SCORERS 19/20

BART HOEFNAGELS	14
RAMAN VAN WEE	12
TIM ZONJEE	11
JOEL WEIDMAN	9
ALI SENTISSI	2
JUANCITO VAN LEEUWEN	2

TOP SCORERS 19/20

KASPER SPOELSTRA	2
DANILO REMMERS	1
MARLO NEUMANN	1
THIJS VAN DER BURGT	1
RUBEN SANGERS	1
NIGEL JANSEN	1

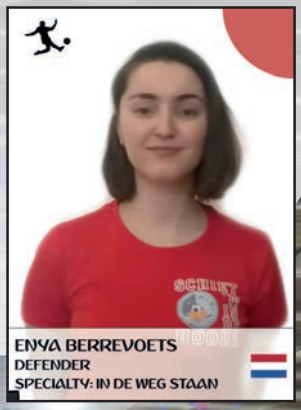


2019-2020 Monday evening competition Delft

NIGEL JANSEN
DEFENDER
A.K.A. "DE ZAAG"

JUANCITO VAN LEEUWEN
DEFENDER
SPECIALTY: FOULS

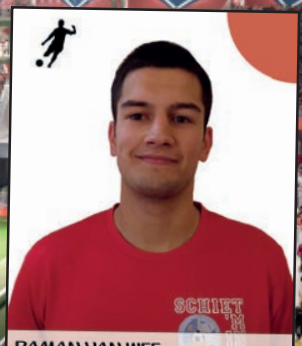
THIJS VAN DER BURGT
DEFENDER
"WE DON'T LOSE, WE ONLY WIN OR LEARN"



ENYA BERREVOETS
DEFENDER
SPECIALTY: IN DE WEG STAAN

ANNA HARTENDORP
MIDFIELDER
SPECIALTY: DE KORTE HOOKE

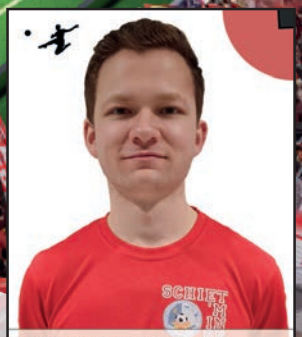
KASPER SPOELSTRA
MIDFIELDER
"LATEN WE VANDAAG MAAR WEER IT WINNEN"



RAMAN VAN WEE
MIDFIELDER
"GOEDE VERLIEZERS BESTAAN NIET"

MARLO NEUMANN
MIDFIELDER
A.K.A. BUITENKANTJE

MIKE HOOGEVEEN
FORWARD
SPECIALTY: THE THIRD HALF



DANILO REMMERS
FORWARD
A.K.A. THE CANNON

LARISSA LOBBEZOO
FORWARD
SPECIALTY: EXTENDABLE LEGS

BART HOEFNAGELS
FORWARD
A.K.A. THE GOAT

Deportivo de la Corona 4 3 Schiet 'm in de Hooke

Because, unlike Schiet 'm in de Hooke, we cherish those who helped us when times were desperate. We would like to thank the following ballerz:

Maas Houtman, Pim van Beeck, Julian Klooster, William Verstraeten, Mels Jagt & Ali Sentissi!

Founding

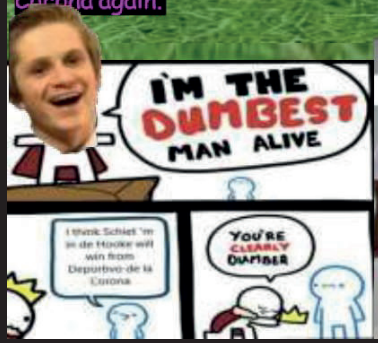
Starting off as just a few young boys with a dream, the football team of Deportivo de la Corona quickly developed into a true institute of world class superstars. Founded on the core principles of trust, friendship, (excessive) fanaticism, Bobs dad, and de Huishoudbeurs, they strive to infect de maandagavondcompetitie with liefde en lust. A truly unique collaboration between houses, cities, associations, vvvtjes, year layers, ethnicities, and Julian.

El Clas'Hookeco

The match was visited by the hundreds, creating an atmosphere never seen before in de maandagavondcompetitie. Everything seemed to fall the way of the players in the red, who were camping their goal like pussies. When Shivam scored a wonder goal, spirits were broken and the true winners rose up. And once more it ended in an exciting but decisive 4-3 victory for the official partners of the Huishoudbeurs. In the post match interviews, Raman van Wee, one of their many defenders, claimed : "everything went right for us, but we still lost" after being asked why he never wanted to play Deportivo de la Corona again.

Pre-season

Before kicking off the 2019/2020 season, Deportivo de la Corona needed to test their skills by playing a friendly match. Because it was the first time playing together, a weaker opponent was desirable. Schiet 'm in de Hooke responded gretig With Nigel helping out in defence, it ended in an exciting but decisive 4-3 for the men who would la[illegible]n go viral.




McDonald's
With bae
Sybrand Buma
www.cda.nl
AUSTIA
CHAT
FESTO

DSEV Soup: Hooke's Unofficial Soup Committee

DSEV SOUP

– DE LEKKERSTE VERENIGING –

DSEV Soup is a soup committee integrated by members of Hooke. It was founded on the 28th October 2018. Our goals are to make delicious soup and enjoy those lazy Sunday evenings with good food and company. We meet on Sundays at Philippe's house. Our first big accomplishment was making 20 L of brocolli soup for the DIES food festival in 2018, with great acclaim. At the 2019 ATP chirstmas dinner we earned our spot in the Hooke hall of fame, with 30 L of carrot soup. This delicious recipe can be found in the box below.

To the members of DSEV Soup, 'vo! May we keep fulfilling our goals and our bowls.

Carrot Soup
Ingredients:
- 1 diced onion
- 1 clove garlic
- 1 cm ginger
- 1 kg carrots (cut)
- 1 L vegetable broth
- 50 ml orange juice
- 200 ml milk

1. Bake onion & ginger.
2. Add carrots & garlic, bake for 2 min.
3. Add broth & milk, simmer for 15 min.
4. Blend soup until smooth. Add orange juice. Enjoy!

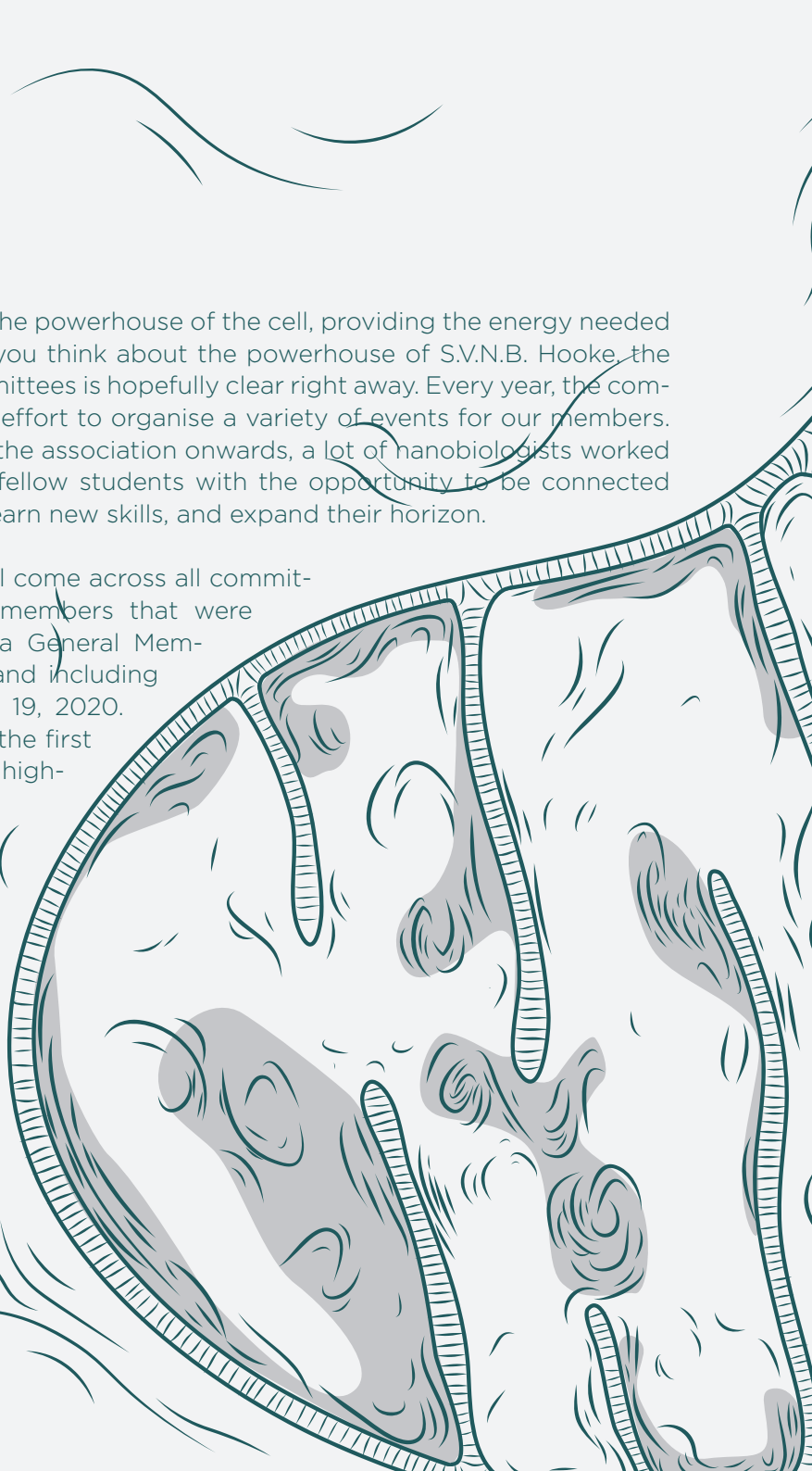

MITO
CHO

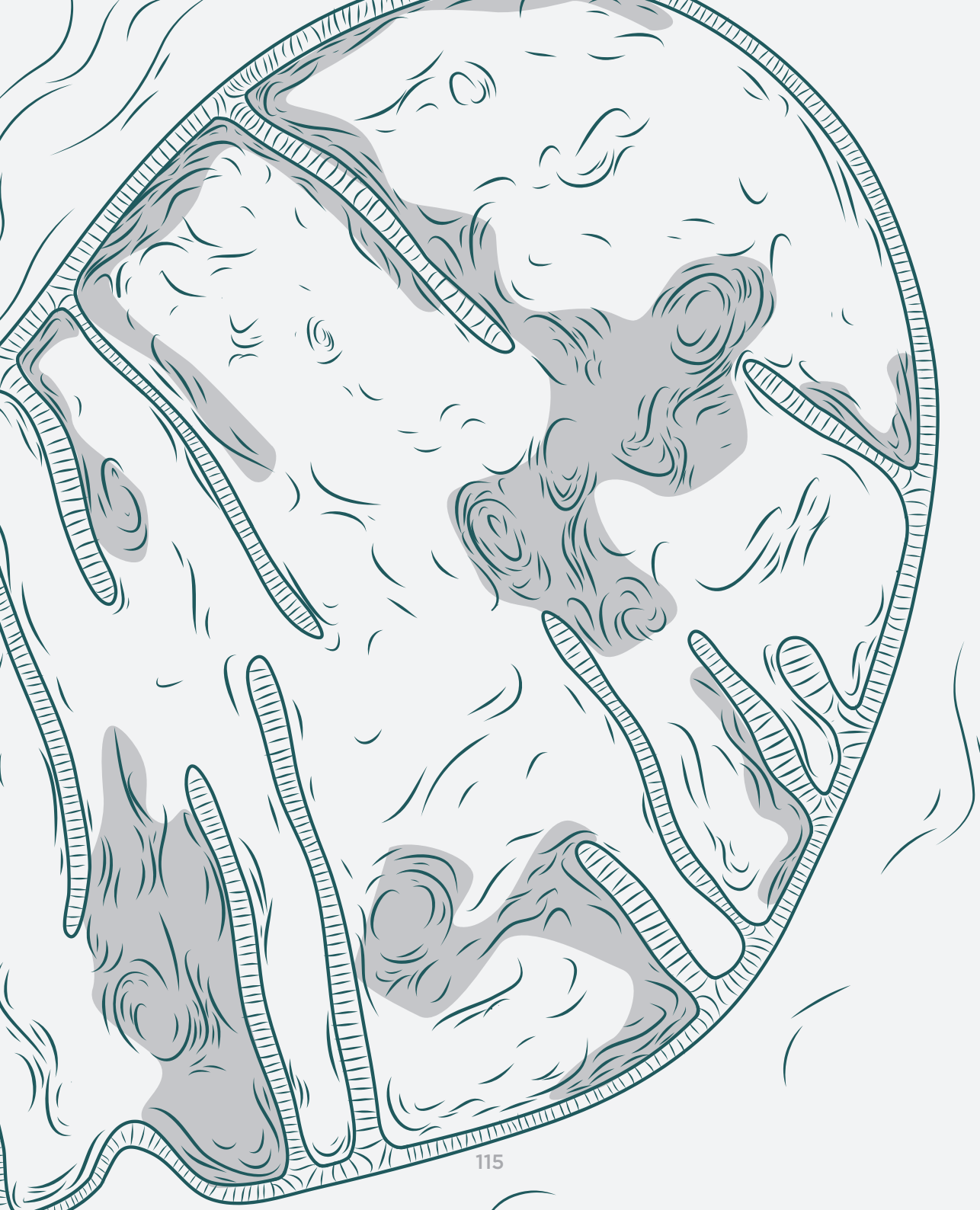
The mitochondrion is an organelle of about a micron in size, where the synthesis of ATP takes place. Chemical energy from oxygen and nutrients is converted into adenosine triphosphate, waste, and heat. This process happens in the mitochondria, mostly through oxidative phosphorylation. The mitochondria have an inner and an outer membrane, with the intermembrane space in between. A proton gradient across the mitochondrial inner membrane causes the protons to move from intermembrane space into the mitochondrial matrix. In this movement, the protons pass the ATPase, a protein that functions like dynamo. The 'dynamo' turns due to the passing protons, and from this movement the ATP is synthesised.

NDRION

The mitochondrion is the powerhouse of the cell, providing the energy needed to live and survive. If you think about the powerhouse of S.V.N.B. Hooke, the analogy with our committees is hopefully clear right away. Every year, the committees put in a lot of effort to organise a variety of events for our members. From the founding of the association onwards, a lot of nanobiologists worked hard to provide their fellow students with the opportunity to be connected with the association, learn new skills, and expand their horizon.

In this chapter, you will come across all committees and committee members that were ever installed during a General Member Assembly, up to and including the GMA of February 19, 2020. Also, the festivities of the first lustrum year will be highlighted here!






LIVE

LUSTRUM