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Volume 13  
Number 2  
March 2019

# ATTENTIVE

Periodical of S.A. Astatine

## Shotgun Rules



## Summer Festivals



Cape Town

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## Fresh

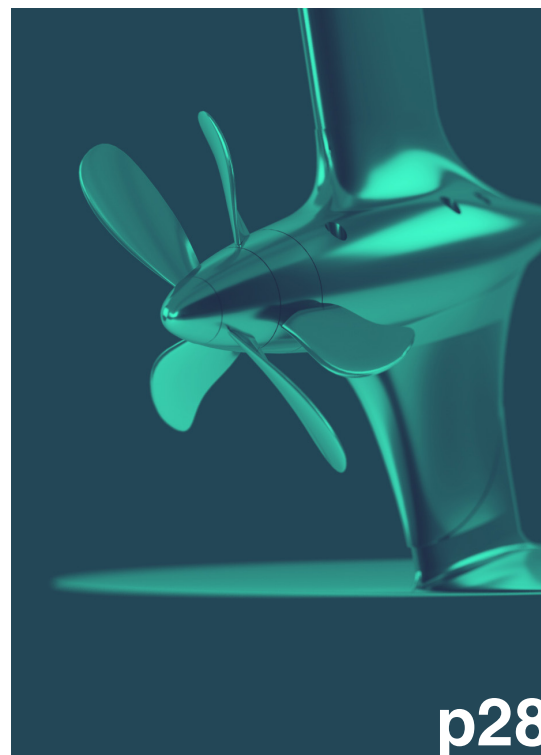
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Dear readers

Well, here it is. It only took us half a year, but the first Attentie that I was in charge of has seen the light of day. This being the first time I am actually chair personing for anything (except when we mixed up the Piranha board functions for a day last year), I can only say I am proud of the whole team. And thus, since me being in charge has not developed into the chaos I was somewhat expecting, enjoy this completely new edition!

As you may notice while reading, we have tried going with a general(-ish) travel theme throughout the articles. Since Advanced Technology is presented as an international study (and we came up with this right after the summer break), the Attentie members have more than enough experience abroad. This has made for some great articles. A tour through Cape Town by native Christophe (in true Christophe style), an article on Summer Festivals by our very own Jons as well as some the usual stuff, like Astatine activities.

The new committee has been working overtime (as if that exists for students) to finish everything in time, and considering that this marks the amount of volumes we pushed out last year, I think we may just have stopped procrastinating.

Anyhow, enjoy the read, and until the next edition!

Editor in Chief  
Sander de Ridder

## From the AT staff

*2019 will be an important year for the programme Advanced Technology, as we are up for reaccreditation.*

This sentence may require some explanation. First of all, what is accreditation? Every government funded academic programme requires a valid accreditation which is required for handing out diplomas to its students. Well, at least diplomas that allows alumni of Advanced Technology to call themselves Bachelors of Science and entitles them to enroll in a Masters programme. So that makes accreditation a serious business for both students and staff alike.

The whole process of reaccreditation has to be done every six years and takes, in total, about one year. Why so long? Well the programme has to prove that it is up to par on several points. This is proven with the aid of a so-called Self Evaluation Report in which the programme reflects on its performance. Yes, also the programme has to reflect and determine from that its weak and strong points and debate possible improvements. This has to be done in four major categories:

1. The vision of the programme and the intended learning outcomes, i.e. the final qualifications of stu-

- dents that finish the programme.
2. How the curriculum is set-up to realize these qualifications.
3. How tests are made to check that students have acquired these qualifications.
4. The outcome, how do students perform.

This report of just 16 pages, plus introduction and appendices has to be written before the summer of 2019 and will be evaluated by a panel which during a visit in November 2019 will also talk to all stakeholders, including several students and alumni. Associated to this visit the panel will for sure have a look at work done by students. This can be any exam, including whether this was a proper exam, with justifiable criteria and a few dozen bachelors theses will be looked upon. A serious visit.

If everything goes well, the panel will have a positive conclusion and advices for improvements and students and alumni know that they have a good and solid education. But, what if not...? *"In this process failure is not an option."* That is a quote attributed to Gene Kranz, the flight director of NASA's Apollo programme which intended to put a man on the moon. Luckily we have a much easier task.

## From the Astatine board

*Being board is one of the most varied years we will probably experience in our lives.*

Although the day-to-day tasks seem like the same thing all over again, there is almost always something that spices up our day. Loads of these things will never be known to our members, as they are behind the scenes or part of out-of-Astatine adventures. Therefore, I would like to show some of these experiences with you, to give you an idea of our most crazy adventures. You might be familiar with the constitution drinks in Enschede. Loads of pushing, shouting, free beer, all these things. But in every Dutch city, constitution drinks are met with other traditions, rules and people. We had the honour of visiting the constitution drink of one of our sister associations, S.A. Leonardo da Vinci, in Nijmegen.

Well...

As cliché as it might be, I have got to start with our own Constitution drink. When preparing for this, you know what to expect, and you feel like you know what will happen because you have visited so many other constitution drinks beforehand. However, your own constitution drink really is an absurd experience. Imagine standing there, with an army of 20 (mostly first year) students before you, to defend you from other boards looming to bras either you or your property. After a while, you will start to ignore your surroundings more and more, until at once there is a breakthrough, and everybody starts running for their lives, towards the safety of a closed door.

Op de Hoogste!  
Rik Seelen





# The Bucom

## Looking Ahead

*The BuCom is a yearly study trip within Europe that happens by bus. With exception of last year where they wanted to go further and therefore took the plane to start the trip.*

It is not just a general study trip. as It has a more specific goal, which is, next to having a lot of fun (of course), to give students a feeling for daily life within a company.

To satisfy this, several companies and

universities are visited by the students during the week they are away.

What's more, it is one of the few committees of Astatine that is nearly completely self-financed, meaning that most of our budget is not granted to us by Astatine, but that we contact research groups to sponsor us. And of course there is the participant contribution. Do you really think we would organise a whole week for you without taking away any of your money in return?

So anyway, we get money from research groups and make publicity for them to the companies and universities we visit in return, whether it be through showing off their logos on our shirts and website, or having descriptions of who they are and what they do on our booklet and again on our website (you should check it out, it's amazing and you can find a lot of info! Just go to [web.astatine.utwente.nl/bucom](http://web.astatine.utwente.nl/bucom)). The last means of this is by posting another article in the AT-tentie once we're back, talking about all we saw, did and visited. And we go through all that trouble just so that we can make it as cheap as possible for our beloved participants. But then again we chose for this, so not sure I can complain either.

But it's all nice and fun talking about BuCom, what it is and why it does what it does, but maybe you want some information on where we are actually going this year? Well, if we want to talk about that I will have to introduce someone to you first.

And that person is no one less than our mascot TODS the dragon! You might think that it is a weird name for a dragon, but that is for a very specific reason as it is not only its name, but also an acronym.

It stands for (sorry for the non-dutch-ies) Tjehie, Oostenrijk, Duitsland, Slowakije (or Czech Republic, Austria, Germany, Slovakia), which is exactly where we will be going this year!

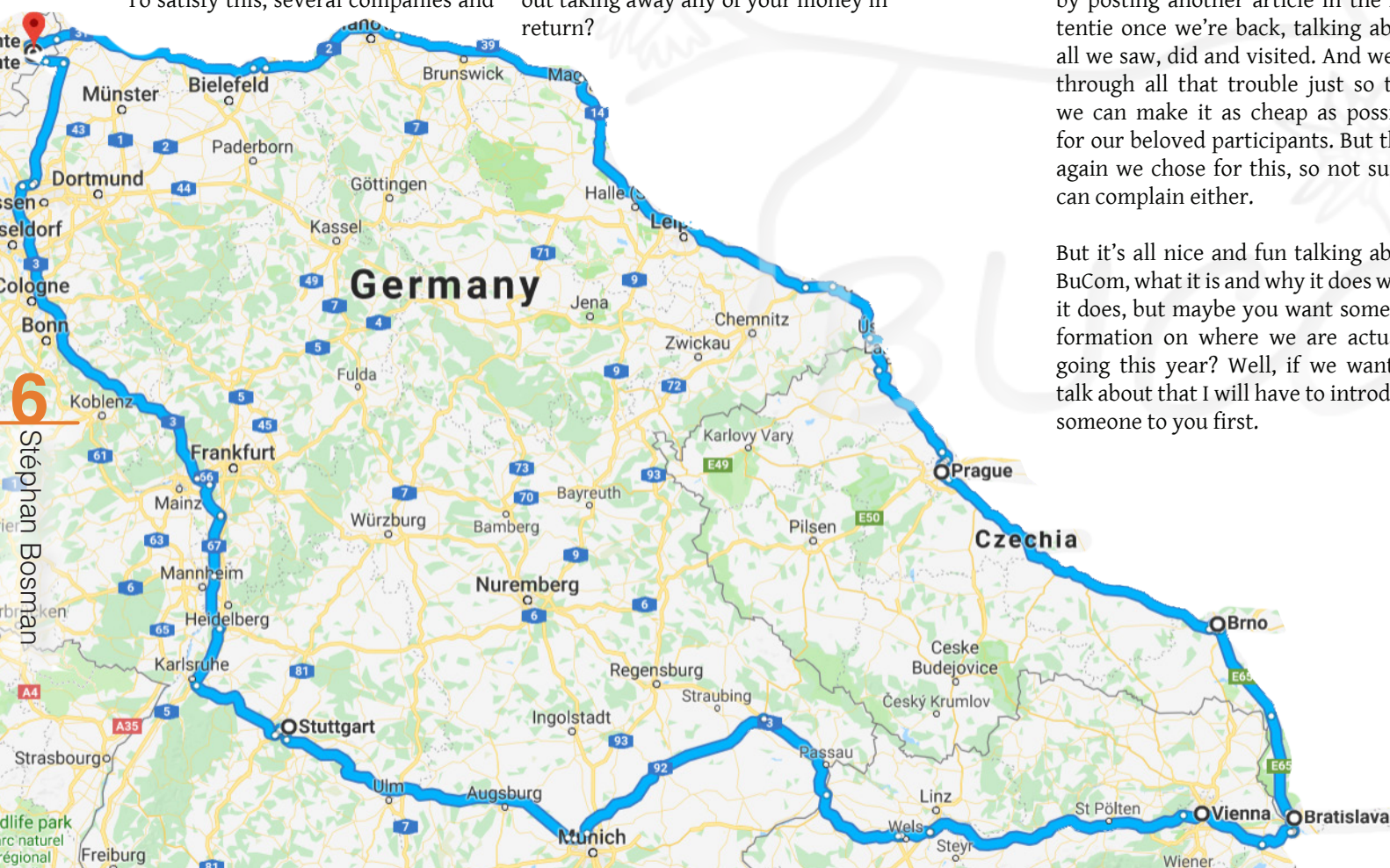
In chronological order that would be: Czech Republic, where we will first go to Prague and then to Brno for 2 days each.

Slovakia, where we will see the beautiful city of Bratislava.

Austria, where we will visit its capital Vienna.

And finally on our way back we will make a stop in Stuttgart, to continue the next morning and arrive back in Enschede somewhere in the afternoon. So I hope you enjoyed me going on and on about BuCom and that you feel good about the few minutes you spent reading this and not studying!

Cheers,  
Stéphan Bosman  
Chairman of BuCom 2019





# Puzzle

## Word Search

A O R E D C K G W T T L E I N E I O S T T  
L R E A A C A I S T M P S O A H E S P O D  
C N M I U G R S T E E R I N G W H E E L C  
I M T R A S N N O M O T O R C Y C L E L I  
F I T R E G N E S S A P Y K A N C I D B N  
F N S E A T B E L T H M A L A R H I L O C  
A I E N T E I E S S I N W M W S E R I O I  
R V G T L A R S T R L F H B D L S V M T P  
T A E S K C A B R T I D G N I A R D I H A  
P N G R N G N O L A G N I S Y O O G T R F  
L I R I A N R L R A L W H N T E A R I I D

backseat  
highway  
motorcycle  
road map  
speed limit  
traffic

driver  
minivan  
passenger  
seat belt  
steering wheel  
truck

gas station  
mirror  
picnic  
singalong  
toll booth  
windshield

8

Ruben van Asselt



# Boost your career

Apply for the ASML Business Course  
on the **23rd and 24th of May 2019**

Deciding on what your next step will be after your technical master's degree can be challenging. The ASML Business Course can help! This course will teach you about ASML's semiconductor manufacturing technology and help you develop both the hard and soft skills you'll need to work at a leading-edge tech company.

Please register before March 31 at [workingatasml.com/businesscourse](http://workingatasml.com/businesscourse)

# ASML

Be part of progress

# The Art

## of Travel Videos

*It is the first birthday after a long summer break. Everyone is shaking hands, greeting each other and catching up. As a person that is just there because he/she just so happened to be at their parents' for that weekend, you are silently sipping away at your drink. Then you overhear that dreaded question being asked "how was your vacation?". Before you have had the time to run to safety, cell phones have been whipped out, computers are being turned on, and your grandparents are firing up the good old slideshow projector. When everyone has finished showing their hobbyist-but-nearly-professional photos and telling the oh so compelling stories behind them, you realise you need another holiday. Or another family perhaps.*

We have passed the age where every photograph taken counts a while ago. Digital cameras or smartphones can save enough pictures to serve an obnoxious tourist a whole year. Then there also is the fact that not everyone is able to tell the story behind an

image well. There might not even be a good story behind it at all. It may just be another "look this is this other semi-cool place we have been". Noticing myself becoming one of those people, I desperately searched for a solution. And found one (except that now I cannot shut up about either). I decided to make a short video of my vacation. I booted those programmes I illegally acquired some time ago and looked up some examples in the meantime. The first hit was a video by Sam Kolder.

Seriously, stop reading this article now. Go to YouTube, and search his video about his 2016 year. Watch it. Watch it again. Watch it once more and realise that you will never top this, and maybe you do not even want to. Now return to reading the article. This video is precisely what one wants from those birthdays. Within five minutes, the madman manages to summarise an entire year (whereas your aunt does two weeks in two hours), whilst

being more engaging than George R. R. Martin has been since the release of *A Dance with Dragons*. If any of the shots would be shown for more than two seconds, David Attenborough would most probably storm in to start narrating them. Still, there is a refreshing non-linearity between the shots, since the subjects change from nature to urban jungle to cultural heritage and back again the whole time. All the places shown will make any unofficial travel Instagram fit girl drool with envy. Transitions that are so smooth any Sander will keep watching them over and over again, trying to grasp how someone came up with this. And everything has been synchronised to a song that makes it slow down or speed up at the right times, whilst even being enjoyable to listen to. Needless to say, I was very much impressed with the whole thing.

So this is what you have to do after your next holiday. Take a lot of videos (please do not put any photos in there). Learn how to edit a video (and learn After Effects for those transitions). Find a song that captures your journey well, and keeps up a nice pace throughout. Stitch everything together. Then get close to giving up since this takes up way too much of your precious time. Make all-nighters to finish the bloody thing. Go to your aunt. Bring up summer. Shove your phone in her face before she can start rambling on about her vacation (for the

love of god do not let her start). Sit next to her awkwardly for the next few minutes. And there, you have done it. You showed your aunt how to show off ones holiday the right way. Now all that is left are her holiday photos.

**(Disclaimer: The writer nor the Atencie are in any way responsible for you aunt asking you to fix her computer)**

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Sander de Ridder



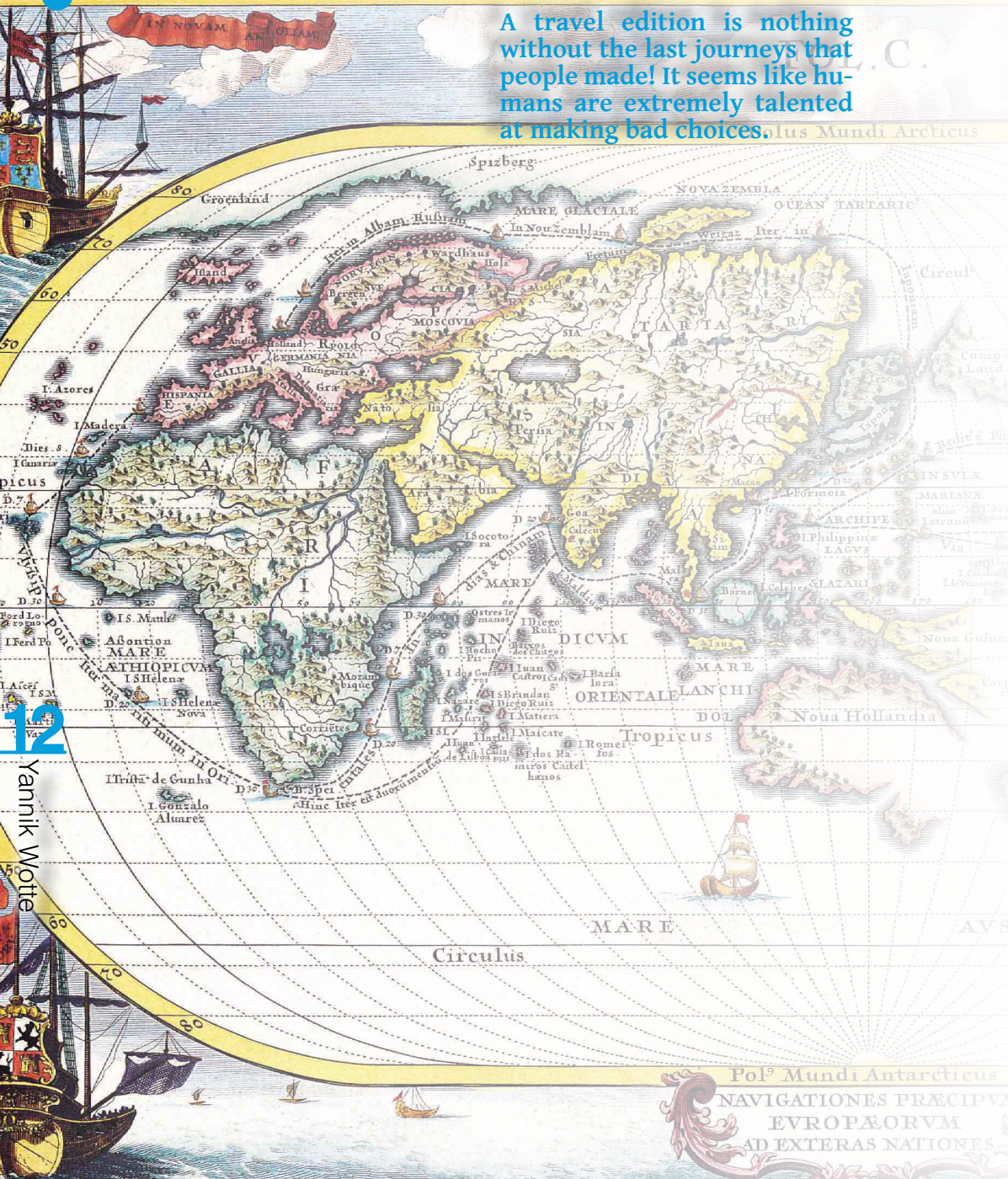
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## Last Journeys

A travel edition is nothing without the last journeys that people made! It seems like humans are extremely talented at making bad choices.



As an example, Qin Shi Huang, who was the first emperor of China, died from mercury poisoning because he believed that mercury pills would give him eternal life.. Maybe the death of the 15th century Portuguese explorer Magellan can compete with this? Magellan sailed around half the world, from Europe past South America to Indonesia, and then died trying to convert natives to Christianity. The earliest recorded “fatal conversion error.”

But we shouldn't forget about some of the more sarcastic deaths: Take for example Saint Lawrence, now the Christian saint of cooks, chefs and comedians. He was roasted alive on a giant grill during the persecution of Christians in the 3rd century. Last words: “Turn me over – I'm done on this side”.

Voltaire, the well-known French writer and philosopher from the 18th century, allegedly said the following, when asked by a priest renounce Satan before his death: “Now is not the time for making new enemies”.

The most cynical words I could find were from the actor Bob Hope, who died in 2003. His wife asked him where he wanted to be buried, so he responded: “Surprise me”.

There were of course also actual travel-related deaths. On the real short-distance side of that category we have Edmund Ironside, a king in 11th cen-

tury England, who was stabbed by an assassin hiding underneath his toilet.

On the longer distance travel, ignoring Magellan for a moment, there are Carl Terry and Linda Keath: The two are believed to have died because they had sex in the cockpit of their Piper PA-34 Seneca airplane, pushing a control stick so hard that the airplane went above its speed limit and lost its right wing.

The list goes on and on. And we have not even looked at the last words of death row inmates yet, or at the death of various inventors, or at any death reported by the Greek philosopher Diogenes, really. All we can say with certainty is that the last journey isn't always a grim one, and that you might want to grieve a few of these.





# Astatine

## Pole Dancing

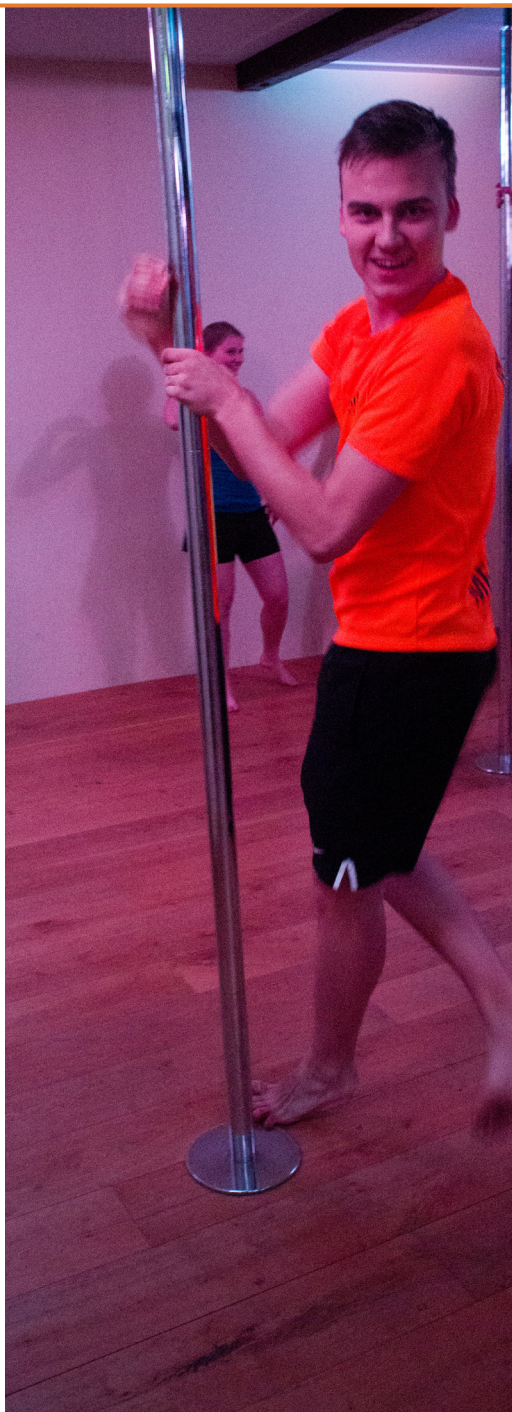
*On the 28<sup>th</sup> of November, it was time for the Astatine members to do something new and exciting. Something they had never done before. It is quite a taxing sport, and by looking at the picture(s) you can already guess what sport it is.*

I've heard it is quite popular in Las Vegas, "surprisingly". To be able to perform well, you have to be agile and be strong, which I've heard is a good description of Astatine members so that should have all worked out. The sport we did was ...

Pole Dancing!!

While some associate this with sex clubs, it is quite a fun sport to do. By doing this course in San Remo, we all learned that it is quite hard to perform all the moves performed by pole dancers. The degree of flexibility is insane and the strength required was too high for most Astatine members.

However, the activity was received very well and afterwards there was a drink in San Remo to 'get rid' of all the (first degree) burns created during the evening. Thanks to the LoA & the SportCo for organising this awesome event (and the promo video by the LoA) for Astatine! Let's do it again next year!





# Summer Festivals

*Summer festivals. These events with lots of music, lots of sweaty people, almost no sleep and no luxury. When you make a list of all the advantages and disadvantages of summer festivals, you might start to wonder why millions of people all around the world go there.*

From my own experience I will explain why you should (or definitely should not) go to such a festival, what you could expect at a festival and some epic summer festivals coming up! This because I also decided to spend my money on a Belgium festival last year, oh well.

All the people I've asked about their experiences at festivals had a different answer, but one thing always came

through. The 'sfeer' or ambience at a festival is something that people enjoy so much, that they never forget.

The feeling that you get while listening to some live music, or talking with friends about how the stars move while walking with sore legs, wondering why your head has not exploded already. At a festival, you can truly forget everything else and just enjoy the moment. You might not sleep in a tent which is way too-small, your phone might die since you do not have electricity available, you might have to wear the same T-shirt for the third day in a row, however, it is all worth it.

Of course, there is also some live

music of your favourite bands. Spotify also has this music available for you, but at a festival, it always is waayyy better. A performance at a festival is not only a pleasure for the ear but also for the eye. Artists perform on these huge stages, professionally designed, with an insane eye for detail. Besides this, artists always perform songs a little bit different by either adding a solo or allowing Spiderman to play on the drums.

In the end, you will always come back with memories that you did not expect, which is also something that makes it fun.

If you have ever thought about going to a festival, you should definitely go! There are so many festivals, there will

be one with your music and which speaks to your inner happiness. One of these festivals might be Sziget, a festival with a very varied line-up, Tomorrowland, a festival with a lot of dance music, or closer to home Zwarte Cross, a festival with not only whacky music but also motorcross and stunts. So, which festival will you join this summer?



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Jons Bolding



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# Calling Shotgun

## The Rules

*The line between harmony and chaos is quite thin. There are but a few behavioural conceits that distinguish us from wild animals, that separates us from complete civil breakdown, that preserves the delicate and precarious balance separating us from total anarchy. Among them, few codes of conduct are more sacred, more vital, or more essential to the continuity of our fragile existence than the official rules for calling shotgun.*

### Rule 1 - Saying the word 'Shotgun'

You must say the word "Shotgun" to stake your claim on Shotgun. This must be done clearly and loud enough so that at least one other to-be occupant of the vehicle can hear you. No variations of this word are acceptable. After you have legally called Shotgun and someone can verify that you did, you have exclusive rights to Shotgun for that ride until the Deed is done.

### Rule 2 - The Deed

The Deed is used as a name for a specified ride. To be more specific, it is any activity or object that directly precedes the ride in an automobile. It is important that the concept of the Deed is accepted by all participants as it ensures an equal chance for everyone to call Shotgun in a specific time-frame.

### Rule 3 - Being outside to call Shotgun

If the Deed takes place indoors, the Deed is considered done after you have left the building in which the Deed took place. All passengers need not have exited the building, but someone must hear you call Shotgun.

### Rule 4 - The Shotgun Gaper

Gapers are people who prioritize Shotgun much more than a normal human being. These people will alter their usual behavior and even undermine their own ethics in order to gain the rights to Shotgun. They do this through legal means, such as sprinting for an exit. Being a Shotgun Gaper, however, is frowned upon and places a target on you for others to learn the rules and try to get Shotgun before you, through legal means.

### Rule 5 - Voiding

Whenever you break a Shotgun rule as stated in this guide, you may be "voided" from receiving Shotgun privileges for that ride. Although somewhat discretionary, voiding automatically applies if you call Shotgun while indoors, if you do not have your shoes on, or if you display any other blatant disregard for Shotgun protocol.

### Rule 6 - Duration

Shotgun may be called for one ride, one final destination where a deed is to be done. When your final destination is reached, Shotgun no longer belongs to the original caller and may be claimed again. It also stops if everyone leaves the car, for instance when you stop for food.

Altogether this should provide the basis of calling Shotgun and give you a reason to void your unknowing companion from his Shotgun. For a quick recapitulation, you need to know what you are calling Shotgun for to give everyone an equal chance. However, when you call Shotgun, you have to be outside and ready to go.

18

Ruben van Asselt

## The origin of "shotgun!"



Cyanide and Happiness © Explosm.net

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## Valentine

Valentine's day was a huge success. and a lot of members ended the day feeling appreciated. Mainly thanks to Ward, who is apparently such a lovely person he decided to buy roses for like 20 members, but none for me.

## Shame



## Pablo Discobar

One of the parties organised by the TIPCie, with an amazing theme. All participants had the choice to either go with the Pablo Escobar, drugs and maffia theme or as the incredible discoparty-goer. At the party everyone was dressed up as themed and the whole evening fake money went around due to the hefty amounts of drugs and drinks passing through the crowd. As you could expect, it went on till the end of the evening!



## Coconut Migration Patterns

Long-distance dispersal is secondary, because it was the spontaneous, independent migration of coral polyps on a prolonged geological time scale that generated new coral atolls in new areas where the coconuts would be amongst the earliest inhabitants. The coconut palm became an intermittent, itinerant, pioneer endemic there, and also on suitable beaches on volcanic or large islands and continental coastlines.



## Donald Duck

Astatine started 2019 with an honour that will be envied by most Dutch people. Natasja and Marly, besides well-known Astatine members also loyal readers of the magazine, got mentioned in the mailbox of Donald Duck (*Een vrolijk weekblad*). For the international people, this may be considered the equivalent of being on national television. But then again, this is probably even better.



## Nicat

This year's NiCat took place in a new farm! You know what this means. New farm, new NiCat! This does not mean that the whole schedule was changed, some classic elements of the Nicat were still present this year. This meant everyone (except some privileged people) had to cycle to the destination. At location, the (in)famous Cantus, held by the new board, was held on Saturday evening and on Sunday there was Ransbal, which was mainly enjoyed by the spectators. NiCat, you were great!





# Astatine

## Christmas Market

*On the 15th of December a trip was organized to the Christmas market in Münster. Through this town five different Christmas markets can be found that include a total of 300 stalls inviting visitors to stroll around, do some shopping and enjoy the atmosphere.*

After a small walk from the train station to the first Christmas market we found ourselves in an old town that was turned into a winter fairy tale. The first market was centred around the town hall. Here, on every corner of the street, there were twinkling lights and big Christmas trees. These were either for decoration or for purchase, as on every market in the city.

Also there were many stalls selling food, drinks or decorations. The smell of the food and the drinks could be sensed from afar and was sometimes very sweet or smoked. The sweet-

ness came from the Glühwein and hot chocolate with rum served in a typical Christmas mug. The smokiness came from the freshly smoked meats and fish, which accompanied by the fire looked very amusing. Next to all these stalls, multiple different events also occurred.

For example in the Lamberti church the Angelus concert took place, where except for one drum instrument they only use the wind for instruments. You could also watch a Christmas show or go to a museum.

To summarize, during the December month many activities take place in Münster. You walk a lot, so the best way to finish the day is by getting yourself a big chug of beer, in a nice bar close to the train station, before traveling back to your own cosy house.

# From 0 to 200

## REAL QUICK



*What started off as a bunch of Russians doing Russians things -Weird stuff with snow-escalated (or de-escalated) quite quickly. Before they realised it the Americans did what Americans did and stole the idea, but without the ice and about 200 years later, with the French trying but not really succeeding in between. And thus we now live in the golden age of what the Spanish call "a Russian Mountain", what the Russians call "an American Mountain" and what the Dutch call "an Eight Track" -since we lack any creativity whatsoever. It is what the Americans dubbed, quite accurately, a roller coaster. [1]*

Love them or hate them, anyone who is an Engineer at heart will take a moment to appreciate the sight of a roller coaster. They are a marvel of engineering, and, since the introduction of the computer, are becoming increasingly better. They are designed solely for the purpose of entertainment, bringing joy to the life of countless passengers, as they are carefully

designed to do just that. If everyone had a few million dollars at hand, they would probably be a horrible but not very regrettable impulse purchase. And all of that by the most common force in our lives, gravity.

Albeit, not always.

The first implementations of launches on roller coasters were actually still powered by gravity. By dropping a weight, a cable was wound that would pull the train forward. This system could not be used on very tall rides, and was only used in very early installations. A more widely used system is the Linear Induction Motor (LIM) or Linear Synchronous Motor (LSM) launch. By using an AC signal and a series of alternating magnets, the train is propelled forwards, effectively turning the roller coaster into a sort of railgun. But whilst this system may be considered more physically sophisticated, the







acceleration tends to decrease towards the end. Luckily, the Hydraulic and Pneumatic launch system exists. They can deliver something none of the others are really capable of in comparison. To use the words of a famous mechanical engineer on another subject:

- POWER  
Jeremy Clarkson

It is no surprise that the three fastest roller coasters in the world all use a hydraulic launch system. They can launch you over 120 meters up in the air without breaking a sweat. And it's only downhill from there, as the rest of the ride will seem tame. Luckily the sights at those heights make up for it. The fastest acceleration on a roller coaster pulls the trains at over 3g's, about the force astronauts experience during blast off. But inducing such forces is no easy task. They can produce a peak power of 10,000 horsepower, meaning it delivers the equivalent of a fifth of the French cavalry during the Waterloo campaign. No surprise then that it requires a motor the size of a horse. [2]

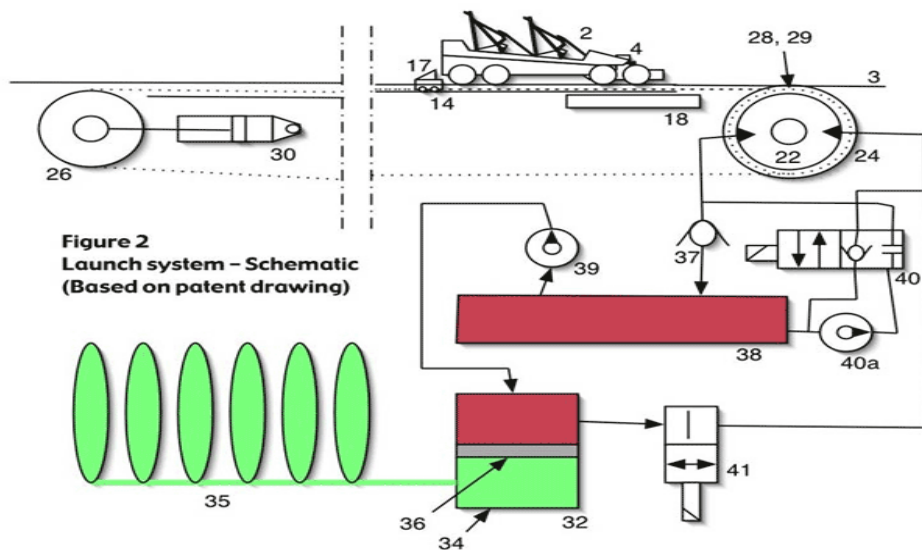


*The motor of Top Thrill Dragster, Cedar Point, Ohio [3]*

This baby hurls what is currently the second highest and third fastest roller coaster in the world with 193 kilometres an hour up to 128 meters. It consumes 2 MW during the four second acceleration of the 5500 kilogram train. And if that failed to take your breath away, the view of lake Eerie will most probably [4]. It can do so based on one simple assumption and a bunch of not so simple engineering: "Fluids

are incompressible". This is off course used in all Hydraulics, as it implies that pushing a fluid through a valve should move a valve on another end of said fluid. To produce so much power, the fact that gasses are compressible is used. Below is a schematic representation of the inner workings of a hydraulic motor. Keep in mind Top Thrill Dragster combines 32, but the basic principles remain the same.





Schematic representation of a hydraulic launch system [5]

The magic happens in compartment (32). The red part is filled with an oil by a pump. This causes the gas filled green part to shrink, and the nitrogen in (35) is compressed up to 320 bars. If the train is ready, the valve in (41) is released, the oil is able to flow again and the gas can decompress, fast. The oil can flow at 350 liters a minute into the hydraulic motor (22). This motor, and the other 32, are attached to a cable drum, which is spun by the motors. The cable drum pulls a catch car (17) towards it, taking the train behind it with it. The catch car return to the start of the launch, a new train is mounted before it, and after about a minute the system is pressurized again.

This is of course a major over simplification of the whole system. A ton of safety mechanisms are skipped. The system will never utilise all its motors at once. If it would, one would most likely not be able to sustain the G-forces produced. Due the large pressures and high speeds of components, a lot of friction heat is produced. These launch systems are sadly very prone to injuries like fires, and are not easy to repair. This reliability has caused the hydraulic launch system to go out of favour after about a decade. Which is a real shame. Whilst they are relatively simple in design and easy on energy consumption, as no energy is required during down time, they are a pain because of the magnitudes of power

they have been designed for. Yet all these gentle giants were supposed to do was entertain the public.

This article is simply an homage to hydraulic launches, and in no way does such a system guarantee a thrilling experience. But compared to the traditional lift hill, which builds suspense gradually, a launch does so too, but

releases all that anticipation in a short burst filled with adrenaline, dopamine and happiness. And hydraulics keep truer to the nature of roller coasters than the more popular LIM and LSM methods. No complicated magnetic fields and alternating currents, but applying Newtons third law in a complicated manner to overcome gravity.

#### Sources:

- [1] Wikipedia - Roller Coaster
- [2] Hydraulics and Pneumatics - Want thrills? Go with Hydraulics
- [3] Park impressions
- [4] Me
- [5] Pointbuzz - Top Thrill Dragster - A Technical Introduction





# Solar Boat

## Flying Boat on Solar Power



*9 minutes left. The deadline came closer and closer. Even though I already finished my motivation letter, a little part of me was still doubting.*

*Am I making the right choice? Will the coming year really add to my development? And above all: will it be fun? My parents were a bit hesitant too. I mean, the word “delay” commonly isn’t inherently positive. Frankly, they changed their minds very quickly once they saw the first solar boat build by Solar Boat Twente. All I can say is that this year has been great so far and I can’t wait to see our boat crossing the finish line in Monaco!*

Deep down I always wanted to be part of a team that works towards one goal. An entire year, you are working hard to work out ideas from concept to the final product. Especially once all is starting to take shape, you can be proud. Proud of the accomplishments as a team. Something that characterises Solar Boat Twente is that there is still room for realising completely new ideas.

This year, for example, we decided to place the motor underwater in a special housing. This so called pod motor is one of our major projects and the application is quite unique in the solar boat scene. Commercially it isn’t applied

much either. Nevertheless, we decided to take on the challenge together with a few partners. The motor will be custom made and housed in a nacelle, which is made out of milled aluminum. At first the design seemed quite doable. But then, a few weeks later, the real engineering kicks in! Out of the blue you have to solve problems you didn’t think of at first.

That’s what makes being part of a student team interesting.

Working out your idea from sketch to product and solving problems along the design process. Personally, that is one of the biggest reasons why I joined Solar Boat Twente. Currently two AT students are part of our team: Sander Oosterveld and me (Mark Heimgartner).

Sander mainly focuses on coding software which includes data acquisition and designing the power electronics system which comprises PCB design and soldering. I have been busy with designing the hydrofoils in which I have used programs like Matlab, Solidworks, Ansys and Xfoil.

Besides having technical tasks, you could also help with external relations or public relations. As the design phase is being completed, the coming months we will mainly focus on testing, visiting big events such as Hannover Messe, and eventually racing.

Instead of having one race, we have several. The first race is in Akkrum at the end of May and several more will follow in June. Then, beginning of July, the moment is finally there to participate in the World Championships in Monaco! Here we will compete in an endurance race, sprint and slalom. After the award ceremony there will be a fancy dinner to conclude the hopefully successful race and season!

Do you want to be part of a highly motivated team in which you can come up with an idea and also realise it? Solar Boat Twente is looking for new members to form the third team since the foundation in 2016. Do you want to know more about what a year at Solar Boat Twente looks like? Get involved and visit our website to read more about this year’s experiences. Moreover, we will organise an interest lunch in the beginning of April. Make sure to check out our social media for further info and come by if you’re interested! Get involved and apply at [apply@solarboattwente.nl](mailto:apply@solarboattwente.nl)

## People on Trains

*When travelling by train you can encounter many different people. Here is a compilation of some prominent types of passengers you might meet.*

### The Studious

They prefer to sit at seats with a table, but they have work to do and will always find a way to balance textbooks and piles of paper in whatever space available to them. They are typically armed with a highlighter and pen as they work their way through printed notes, textbooks and hand-written notes. Whenever they do not have earphones to block out the noise or drown it out with audio notes on the material they are revising, they are likely to shoot occasional glares of irritation towards audible passengers in the compartment.

### The Window gazer

They spend the majority of the time staring towards the landscape and cities as the train passes through

– both when the train is speeding along the tracks and when it takes a break to increase its delay. It is impossible to tell whether they are wandering through their thoughts or maybe just asleep with their eyes open. Overall they are quiet and unobtrusive passengers.

### The Gossip on a Phone

Contrary to the window gazer, they absolutely do not remain silent. They enjoy talking about anything and everything, especially to whoever happens to be at the receiving end of their call. Their wish to be understood, regardless of the train's noise and the building headaches of the surrounding passengers, prompts them to speak at a constant high volume. By the end of the journey, everyone unwillingly knows what they think of that new cafe in town and that Jane really should not have worn those shoes for her date because they are, like, so totally last season.

### The Conversationalist

They enjoy a nice conversation with strangers they meet while travelling. Contrary to the phone gossip, they talk at decent volumes with other passengers on the train. If they start talking to you, it is likely that you will get to know where they started their journey and their current travel plans. In the case of a longer train ride, you might also hear about past and future plans or the latest achievements of their grandchildren.

### The Kid (are we there yet?)

These youngsters are typically accompanied by a stressed servant (parent) carrying a seemingly endless supply of snacks and toys, desperately to placate the child to keep them somewhat busy and quiet. The creative questions the kid asks or the stories the parent tells to distract the kid fact that they are not at their destination might draw smiles on the faces of

surrounding passengers. Some of the surrounding passengers are more or less obviously at least as invested in the stories told as the kid. The balance tips when the parent no longer manages to provide the demanded entertainment. The kid is unhappy and will not be controlled. The incessant wailing that the kid uses to communicate its displeasure drowns out all other noise. Once the monster inside is revealed the smiles melt off the faces of the surrounding passengers as they attempt in vain to ignore the howls and shrieks.

This has only been a compilation. There are so many more people to be found in the wild while taking the train. Ever heard of the dazed Daydrinker? The Baffled Britton? The Frantic Frenchman? The Lost Luxembourgian? The Perfect Portu-









# Cape Town

## Tourism Propaganda

*Before I start with any form of actual meaningful writing, I should mention that I am indeed not a paid shill for the South African Department of Tourism.*

I just lived in Cape Town for a whole decade and my parents still live there, so they depend on a functioning South African economy and that depends on tourism. Despite all this, let me assure you that this shall be a completely unbiased account of some ~~awesome~~ notable parts of Cape Town and the surroundings.

### Company's Garden

First up is the Company's Garden (read the *Verenigde Oostindische* kind of company), located in the city centre.

It was built in the 1650s to serve as fertile ground to resupply European ships rounding the Cape of Good Hope to get to the Indies. It contains the oldest pear tree in South Africa, lots of weird endemic plants, 2 museums, and the chilliest hobos you are ever likely to meet. Also one of the museums is a natural history museum and it is better than any I have been to in western Europe.

### Bo-Kaap

This historically Muslim neighbourhood was originally built as slave accommodation. After Apartheid, residents decided to paint their houses extremely bright colours as they were forced to keep them white before then. It is also home to one of the oldest mosques in Cape Town.

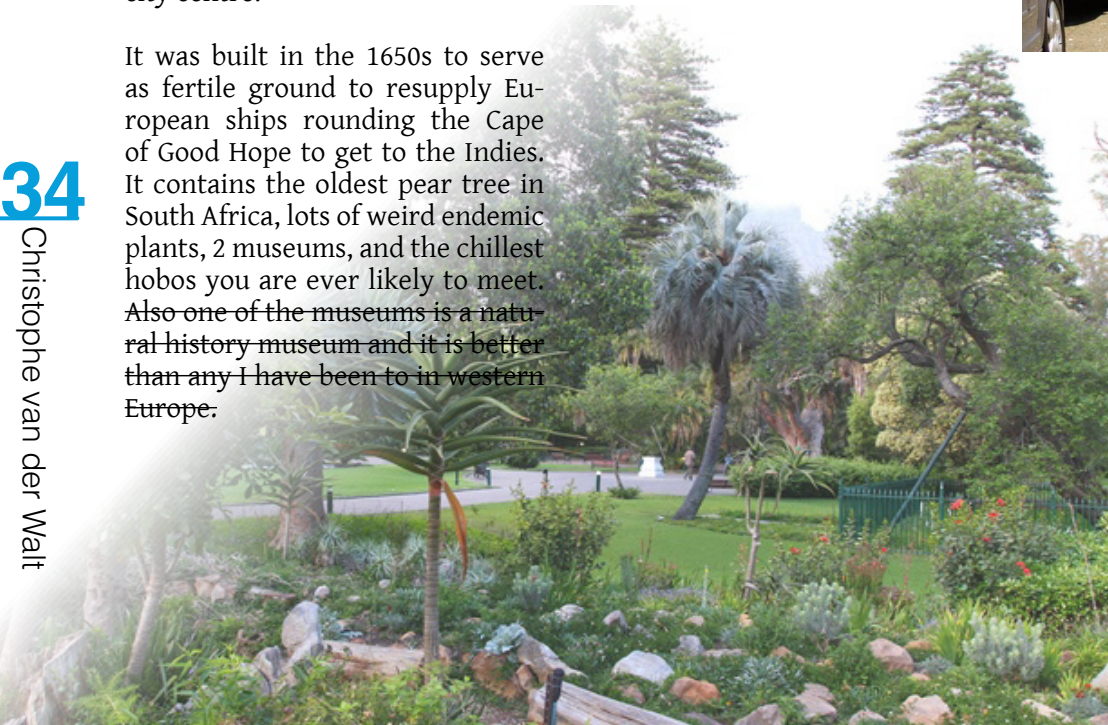
Ok so next up are two beaches and a mountain. You cannot really talk about Cape Town without covering these, so here goes.



### Kraal Baai

Kraal Baai is maybe an hour's drive outside of Cape Town, but ~~it is the best goddamn beach for miles around~~ it is certainly worth it. It is technically connected to the frigid Atlantic, but it is shallow enough that the sun (and ~~the crazy freaking high UV index~~) keep it nice and warm.

Due to its remoteness and location inside West Coast National Park, it has got lots of hermit crabs, sand sharks, and even some octopuses swimming around doing their thing. Wear sunscreen though ~~cos you'll get absolutely nuked by the sun~~ because you'll get burnt.







### Boulders

It is a beach and it has got penguins and rocks and sand and super blue water (friggin cold though). If you like the idea of swimming with penguins, this is a super cool beach. Don't go too near them though because they're pretty scary buggers not tame.

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### Table Mountain

You know what table mountain looks like so I'm showing you a picture from the top (in spring). There's obviously a great view, but most importantly, lots of endemic vegetation is to be seen there. Notably, species of *fynbos*, flowering shrubs that you won't find if you stray too far from Cape Town. Most remarkable among these is the most beautiful flower out there imo Protea.

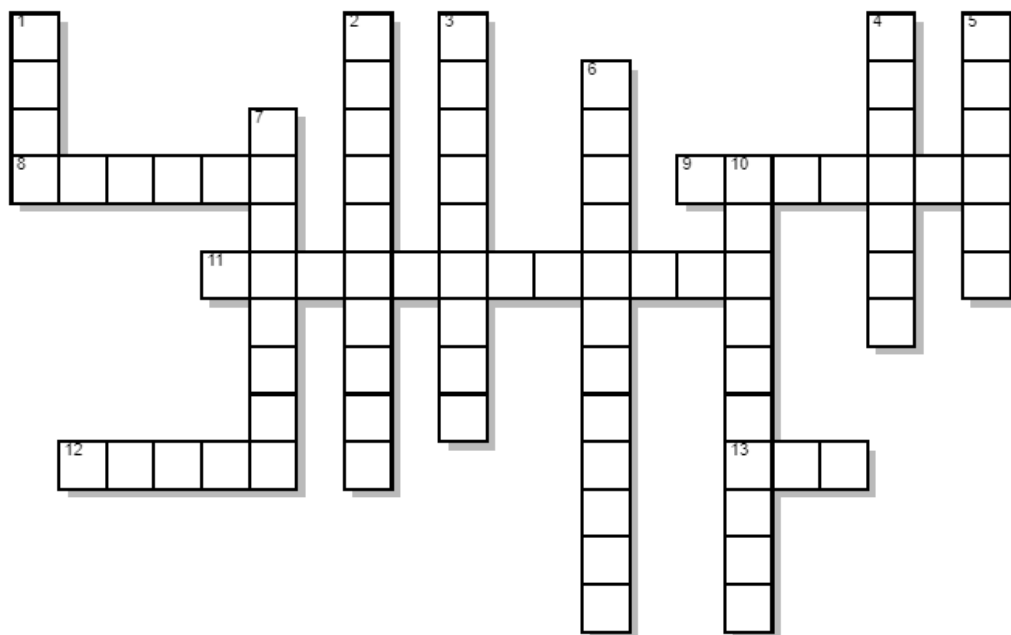
So this has been Christophe's account of what's up with Cape Town. Please visit, my family needs your cash monies.



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### Travelling



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#### ACROSS

- 8 Summerfestival
- 9 Weapon and position next to the driver in an automobile
- 11 Dutch word which is impossible to translate
- 12 Means of travelling
- 13 Linear Induction Motor

#### DOWN

- 1 Another word for a birthday
- 2 Racist Dutch tradition
- 3 A person who is 'on the road'
- 4 Dutch word used in the song of Astatine
- 5 An important color
- 6 A country
- 7 Designer of 12-3
- 10 Technical application which makes use of oil

## 7 Layer Dip

As you may be aware, the Super Bowl recently took place, on February 3 rd . This event is supposed to center around American Football, but the real attractions are the half-time show, the epic commercials, and, of course, the snacks.

So, let me introduce you to one of my favorite Super Bowl snacks: the 7 Layer Dip! This deliciously unhealthy dip is meant to be enjoyed as a side dish, but it's so irresistible I usually treat it as a full meal!

Serves 3-4.

#### You will need:

- ① Pulled pork or chicken.  
Buy 1 package, or make yourself:
  - Barbecue sauce
  - A few chicken breasts

Put the chicken breasts and the entire contents of the barbecue sauce bottle in a slow cooker. Cook on low heat until the chicken falls apart. Pull apart.

- ② 1 can of beans (refried if you can get it)

- ③ Guacamole.

- Buy 1 jar, or make yourself:
- 2 ripe avocados
  - A red onion, chopped
  - A tomato, chopped, the wet center removed
  - 1 lime
  - Some cilantro, chopped

Remove the pit and skin of the avocados. In a medium sized bowl, crush them into a pulp with a fork. Mix in the onion and tomato. Season to taste with lime, cilantro, salt and pepper.

- ④ 1 small container of crème fraiche
- ⑤ Salsa.

Buy 1 jar, or make yourself:

- 3 tomatoes, quartered
- 1 red onion, roughly chopped
- 1 clove of garlic
- 1 red pepper, seeded and roughly chopped
- Juice of 1 lime
- Some cilantro
- Cumin

Add the tomatoes, onion, garlic, red pepper and lime juice to a blender. Blend until just chunky. Mix in Cilantro, a dash of cumin, salt and pepper. Refrigerate for an hour before serving.

- ⑥ 1 bag of shredded cheese (gouda or cheddar)

- ⑦ 1 jar of olives, drained and chopped

#### The Recipe

Layer the ingredients in the order they are listed. You may want to leave it in the oven until the cheese has melted. Enjoy with corn chips.



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