NR. 4
2023/2024

POLYKUM

MOTION

PLEASURE CURVES
Interview with a Sexologist

IRON, CAPITAL, EMPIRE
The colonial Past of Railways

MOVING MACHINES
The playful Side of Robotics

vseth Verband der Studierenden an der ETH


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EDITORIAL

Polykum, In Constant Motion

You're reading the thinnest Polykum since May.

Not because Polykum is – as some unenlightened people will still claim – uninspired and unnecessary. Unless, of course, that's how you'd describe an interview with a sex therapist, our very own correspondent's impressions from the Geneva Motor Show, or a look at robots with potential spying abilities and the size of a bee.

These texts made the cut, following some of the more heartbreaking decisions in the Redaktionsleitung's collective lifetime. An interview about life on other planets and the People of ETH page didn't.

Why? Financial troubles sometimes affect even your favorite publication. But they also inspire us to move and think fast, and finally make our Instagram and website a living reality – thanks to our two new board members: Yoel and Sevim.

Enjoy the spring – and let Polykum spice it up and sweeten it for you!

Lisa

P.S. In the midst of my eternal quest to complete at least 3 different to-do lists, I am very grateful to Gaurav Singh for his inimitably anti-chaotic calmness and endless patience. And to Marius Wirtz, for making electric motors and self-balancing rockets an exceedingly personable opposite of intimidating.

Lisa Likhacheva, Redaktionsleitung Polykum
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Das Polykum ist ein Magazin des

vseth Verband der Studierenden an der ETH

PRÄSIKOLUMNE

Of budget cuts and statistics

VSETH

Hello Readers!

I hope you're doing well and had a chance to recharge over the winter break.

As we start the new semester, I wanted to share with you some updates on the Federal education, research, and innovation policy for 2025-2028. Let's work together to make the most of what we have and continue to strive for excellence! Unfortunately, due to budget cuts, the ETH Domain will have about CHF 200 million less funding than planned. This will have significant impacts all over ETH, also in teaching. The extent of the impact is unclear at this point, but VSETH will make sure to be part of the discussion. VSETH has sent an open letter to the Federal Council about this issue, and we are going to visit Bern to talk to some members of parliament in the coming weeks. You can find our full position on the topic on our website under Politics @ "Finances ETH Domain."

Since the start of the semester, you may have noticed that prices have increased by one franc for most menus and half a franc for the vegetarian options. We understand that this may be frustrating. But we also want to assure you that we were very involved in this decision and have always advocated for low prices for us, students. While we recognize that canteens also feel the pressure from inflation, it is important for us to ensure that this burden is not blindly transferred to students, who, of course, are also affected by inflation. We were able to limit the increases to lower than those initially planned. You can read more about this on page 5.

We rely on broad feedback to represent the students' position to ETH, fight for our interests, and achieve student-friendly results. One topic where this broad feedback is particularly important is in how students are feeling at ETH. It is important to hear from everyone.

If we want to successfully demand changes from ETH and its departments, it's important for us to have good statistics. The first edition of the "howsETHgoing" survey took place 5 years ago, and almost half of the students participated. This widespread participation allowed us to get a good picture of the students' well-being, and the results were very significant for our exchange with ETH. Presented with hard data, ETH took action on many important topics. In which areas have the enacted changes improved the situation, and in which areas is there still a lot more to be done? That is what we want to find out now, five years later. In the middle of April, the second edition of "howsETHgoing?" will start, and we would appreciate everybody taking the time to fill it out, so that we can get as many responses as possible. You can read more about "howsETHgoing?" on page 5.

Love,
Julia

HOPO-KOLUMNE

How's ETH going?

Anyone who's been at ETH for even a week will tell you that studying here is demanding and that prioritizing your mental health is not always easy next to long hours of studying, tough exams, and very limited holidays.

However, if you can't prioritize your mental health, let me help you with that!

VSETH and AVETH have decided to launch a survey on the wellbeing of students and academic staff at ETH called "wiegETHs". It will help us to do exactly what ETH likes to do so very much: quantify our problems.

In all seriousness, the first wiegETHs survey launched in 2019 was an enormous success. 42.2% of ETH students filled it out, smashing the classic argument of "This isn't representative", or, if you want to make it more mathematical, "This isn't statistically significant", that anyone who's ever been involved in university politics has heard many times. With the irrefutable evidence of ETH's impacting the mental health of its students, the student representatives in various departments were able to bring about a multitude of changes that make studying at ETH more compatible with promoting one's mental wellbeing.

One of the biggest changes that came about in the course of seeking to improve students' mental health is PAKETH, a project explicitly intended to alleviate pressure and transform the summer break into an actual break. (If you don't know what PAKETH is, you can find out on this website: https://ethz.ch/staffnet/en/teaching/projects/paketh.html.)

Another peculiarity of this edition of the wiegETHs survey: The last such survey was in 2019, right before COVID. This one will be post-COVID, but pre-PAKETH (the new academic calendar). So, by comparing the 2019 results with the new ones, we will likely see what negative effects COVID had on our mental health, and what was already bad pre-pandemic. On a more positive note, we will also be able to see the positive effects that the measures taken after the 2019 survey have had on students. And, after the relaunch of wiegETHs in 2029, we can judge how much PAKETH has helped to improve the wellbeing of the students. But unfortunately, talking about positive things is significantly less catchy in newspapers than talking about all things bad and negative, or so a statistically significant survey says...)

Tldr: Fill out the wiegETHs survey! It only takes 13 minutes! The survey comes out right after the Easter break, delivered straight into your emails. Get your friends to do it! Hey, get your enemies to do it, too! Chances are they need someone to look out for their mental health for them, too.

More information on the wiegETHs survey can be found at: https://vseth.ethz.ch/politik/wiegeths/

HOPO-KOLUMNE

Mensa Price Increase

We all know the feeling: you're sitting in the last lecture just before lunch, feeling slightly (okay, let's not lie and say very) hangry and conspicuously checking out what Polymensa has to offer for today's lunch.

It is fair to say (at least in my opinion), that food plays a big part during one's studies, as all that hard thinking and studying needs to be fuelled with a well-balanced diet. And everyone knows how well you can study when you are hungry and just longing for your well-deserved lunch break...

As a result, ETH canteens are an important part of a student's life at ETH, not only to satisfy the basic human need for food, but also as a place to meet and take a break. Therefore, the increase in prices for all menus was obviously met with a certain amount of dissatisfaction and questioning within the student body. If you find yourself among those dissatisfied students, you might be curious about the factors contributing to this price hike and the extent of VSETH's involvement in the decision-making process. So let me explain and shed some light on these questions!

To ensure that the voices of students, scientific, and faculty staff are heard in the gastronomic offerings at ETH, a Gastronomy Commission exists. This commission is made up of representatives from various factions, including VSETH, AVETH (Association of Scientific Staff), PeKo (Staff Commission), KdL (Lecturers' Conference), and the Rector, all led by ETH Vice President for finance. Gastronomy businesses are also invited to commission meetings to report on developments and topics such as the menu, sustainability, and prices – including the recent price adjustments – are covered in these meetings.

The reason for the price increase were inflation and the need to make up for losses incurred during the pandemic, coupled with the continuing low number of special events such as aperitifs. VSETH took a stance against the price increase, and our full statement is available on the VSETH website. Our primary focus was on maintaining the affordability of the cheapest, vegetarian option, and we succeeded in limiting the increase to CHF 0.50, as opposed to the initially proposed CHF 1. Unfortunately, the CHF 1 increase could not be avoided for all other meals.

Hopefully this article has now shed some light on the reasons behind the increase and answered some of the questions you may have had. If you have any further questions or would like to know more about topics such as these, then reach out to *hopo@vseth.ethz.ch!*

VSETH

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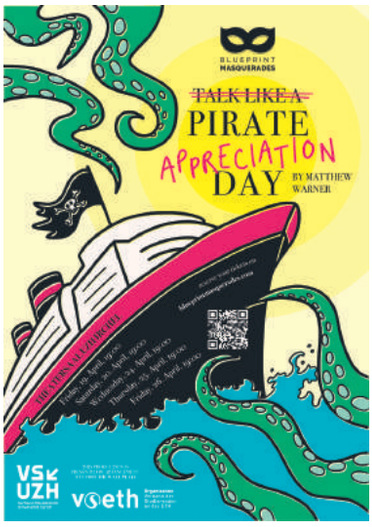
VSETH PIN-UP BOARD

TEXTE VON LINN HILLE-DAHL, JENNIFER GASSER, MATHIEU MENOUX UND MAXIMILIAN FORBERG, ANJA WULLSCHLEGER, POLYBAND & TANZQUOTIENT



BLUEPRINT MASQUERADES: THEATRE PERFORMANCES OF 'PIRATE APPRECIATION DAY'

The Blueprint Masquerades, the English-speaking theatre group of the UZH and ETH, are performing the play 'Pirate Appreciation Day' by Matthew Warner. Join the Nettletons' holiday on the high seas. But chaos ensues when two pirates sneak on the cruise ship. And what could an ancient artefact have to do with all of this? To find out, come to one of the performances in April at the Theatersaal Campus Irchel. Ticket reservation on *blueprintmasquerades.com*

MEWELL: MEWELL IS LOOKING FOR A TREASURER

Are you passionate about bringing mental health awareness to your university? MeWell is a mental health awareness organization helping students and staff across Zurich through awareness lectures and social events. We're looking for a treasurer to organize our finances and lead our team. You'll be trained under our current experienced treasurer, David, and welcomed into a mental health-aware and positive team. Interested? Please email us at *contact@mewellcommunity.ch* for an interview :D

POLYBAND ZÜRICH

POLYBAND: POLYBAND IN CONCERT

Die Polyband ist immer wieder ein Erlebnis! Die eindrückliche Formation musikliebender Studierenden der ETH und der Universität Zürich besticht durch ihren gelungenen Mix aus groovendem Big-Band-Sound und der Klangfülle eines Symphonieorchesters. Lass dich von der Polyband verführen: Zu klassischem Swing, heissem Latin oder zu funkigen Jazz-Rock-Rhythmen am Samstag, 1.6.24, um 20:00 Uhr im StuZ (CAB F 21)!

SSC: SUSTAINABILITY IN EDUCATION

Wondering how your future job will impact society? That's normal: 57% of alumni reported having not or only partially learned about sustainability when studying at ETH. To address this issue, the rectorate shared with SSC a plan to add sustainability competencies for all study programs in a few years. We welcome this step forward but call for quick action – ecology need to be pursued in our future jobs urgently. So chat with your teachers about it, and feel free to join an SSC meeting.
How does a Net Zero future look like? What is ETH doing regarding its greenhouse gas emissions? And how can you contribute?
Join us for the first ETH Net Zero Day, where there will be inputs on current effort to reduce GHG of ETH Zurich, and a hackathon where you can develop you own project for GHG reduction. More info and registration on *ssc.ethz.ch/events*.

student sustainability commission

VSETH

polymesse

FORUM & CONTACT: COME FIND OUT WHAT YOUR FUTURE HOLDS! 9-11 APRIL

Already heard of Polymesse? The time of the year when there is a massive tent on Polyterasse and a bunch of companies waiting to acquire young talented ETH students like us! Polyterasse, Polybahn, Polymensa, Poly-E-Fair, PolyLAN, Polyball, PolyUniQue, Polyband, Polyball, Polyphonia, Polychamps, Polykum... Aaanyway, Polymesse is the largest career fair at ETH, hopefully providing everyone with interesting career opportunities beyond the known Poly-landscape!
Also: Free walk-in CV pictures @CAB!

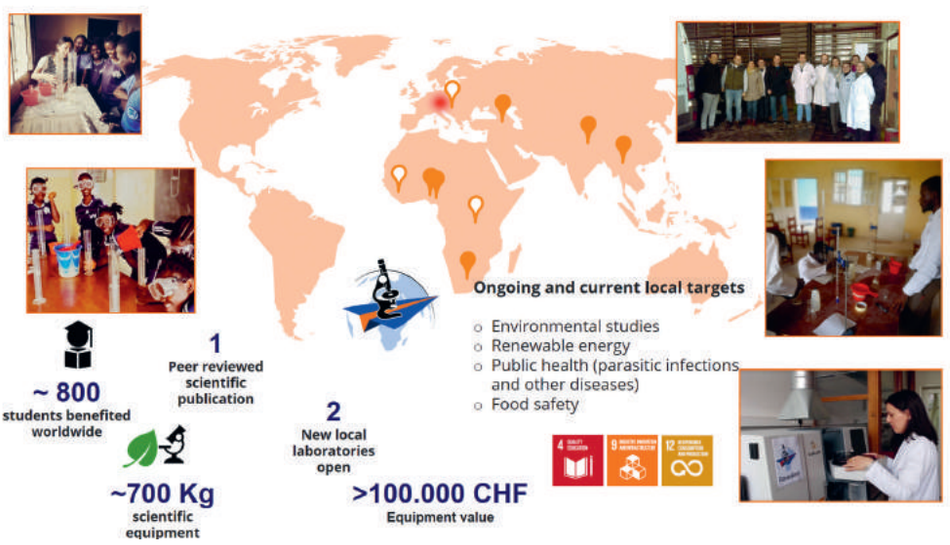
tanz%quotient

TQ: TANZQUOTIENT FRÜHLINGSBALL – YOU'RE INVITED!

An evening full of live music from Polyband and Macadamia as well as food, drinks and dance shows awaits you at our Frühlingsball on the 27th of April at Theater Spirgarten, Zürich. If you love salsa or bachata, there will be an extra dance floor for you! All are welcome, regardless of your dance skills. Take your suit/dress out of the closet and dance into the spring with us.
For more information and tickets see: *www.tanzquotient.org/en/events/100363/detail/*

EquipSent

EquipSent, an NGO in Zürich, collects unused scientific lab equipment and redistributes it to labs in low-income countries. Elise, the marketing member and a PhD student at ETH explains Equipsent's goals.



EquipSent's Impact around the world.

Source: equipsent.org

How does EquipSent collect and donate scientific equipment? What is the process?
We have six teams in the organisation. Their respective tasks are case managing, marketing, matchmaking, strategy design, corporate relation, and recruitment.

When we receive requests for equipment on our website, we start a case. One person from our case managing team would get in touch and give ongoing support: asking for yearly updates from the lab, help when something breaks, and ensure the equipment is put to good use.

Then, a member of the match-making team checks: does the lab really exist? Do we have what they need in stock? Once, there was a receiver who refused to show us pictures of the lab. We had to decline the case.

After going through legal procedures, we make sure the instruments are clean, wrap them, and ship them. The receiver usually pays for the shipping. However, because of import taxes, it could become unaffordable to the receiver, even when it costs about CHF 100. Sometimes we can pay half the price and try to help them apply for grants. A recent example was helping a school in Pakistan to apply for grants at the Swiss Pakistan Community.

What is some of the most needed equipment? Who are usually the donors?
Most are biology and chemistry related; UV spectrometers, balances, PH metres, Electrophoresis and PCR machines... It ranges from small pipettes to 70kg centrifuges. We take every kind of functioning instruments, except computers.

Our donations are mostly from universities, professors, labs, and medicine companies. Once, Ms. Sarah Springman sent National Geographic magazines. She was the former rector of ETH.

What are the challenges in the processes?
One big challenge is that a lot of cases get stuck halfway, because the receivers cannot afford the shipping fee. Also, sometimes, the donated equipment types don't correspond to what the receivers would truly need. Awareness is another big hurdle: We need more donors to broaden our impact!

What are the most touching cases that you have had?
There is a school lab in Congo. The photos of the lab before and after receiving the equipment were so contrasting. The lab was absolutely empty, but now there are students, happily doing experiments!

In another case our donations fuelled the research of the department of Chemistry from University of Sarajevo. The students, eventually, could publish their scientific paper! Successes like those keep us motivated.

We believe our positive impact can be amplified with increased awareness. Interested in driving fairer access to education? Want to join our meaningful mission? Get to know more at EquipSent's info event on the 21st of March!

Zhenxin Cao, 20,
Mechanical Engineering, "To Love Is To Act."

GOOD NEWS

BILLETS SUR TICKETCORNER.CH | GOODNEWS.CH

Fantasy animation targets real life minorities

Despite being a storytelling medium empowering artist to delve into fictional worlds, animation is still heavily inspired by reality. Artists across the ages have reflected the political, sociocultural and economic landscapes of their times, and animators are no different. Preserving and viewing art with a critical eye gives us a peek into humanity's past and current circumstances.

Mother Gothel from "Tangled", a classic Disney villain.

Propaganda and Donald

One topic I will discuss here is how animators handle villains in their stories. In western stories, conflict, which requires some sort of antagonist, forms an integral part of a tale's setup. However, the choice of what or who is considered a villain can be an ugly story.

A series of infamous, forgotten pro-war propaganda cartoons produced in the 1940s by the Disney company featured famous animated character Donald Duck getting drafted into the American military with scenes directly depicting and mocking Adolf Hitler. While not being aimed at children, it is still extremely hypocritical, for reasons that may surprise you:

Visual designs for animated villains still contain antisemitic stereotypes reminiscent of Nazi propaganda and historical stereotypes. I'm not talking about cartoons from WWII.

Villains packed in cultural Stereotypes

I'll name some iconic examples you can google: Mother Gothel in "Tangled" (2010), Jafar in "Aladdin" (1992), the witch in "Brave" (2012), the Evil Queen in "Snow White" (1937), the evil stepmother and sisters from "Cinderella" (as recent as 2007), Captain Hook in "Peter Pan" (1953). What are these antisemitic stereotypes that these movies depict? Jews have historically been depicted as con-stantly complaining, dark curly haired, wart-covered, large hooked nosed, evil, greedy villains of societal hardships, who have ties to witchcraft, kidnapping or a manipulative hunger for economic, political and psychological domination. From their visual design to the roles played in their stories, villains like these are still sending antisemitic messages by tying stereotypes of minorities to evil and villainy. The heroes, in contrast, are often blonde/brunette, white, free of blemishes, with more realistic facial proportions, and depicted as generous paragons of good protecting others from said villains. A point can also be made for queer-coded villains like the manipulative shapeshifting witch Ursula ("The Little Mermaid", 1989) being based on drag queens. Tying moral values to appearances doesn't just exist as a discriminatory idea, it's scarily direct in art such as animations that shape entire generations' childhoods, produced by companies now worth hundreds of billions of dollars.

A Different Kind of Evil

Post 2010's Disney movies have shifted towards depicting families at the center of their stories. Now lacking a personified villain, the antagonistic forces are rather psychological hardships, interpersonal conflicts and generational trauma in ethnically diverse settings. This change could be an indicator of modern audiences' demand for more personal stories, showing humanity's growing mental health awareness. It also means minorities are gaining recognition for their art and in art. It's a trend that we as critical-eyed art consumers should support and praise. From more diverse boardrooms and art studios have emerged more human, empathetic, touching and impactful pieces of art, shaping a future that includes everyone.

Xénon Wullschleger, 22,
a plural writer working to become an art student with the many people in his trench coat.

Wider den Bewegungszwang

Warum das Universum aufhören würde zu existieren, wenn es die Wissenschaft nicht gäbe, und über den schwachen Zusammenhang zwischen Paul Feyerabend und dem niederländischen Barock.

Jan Davidsz de Heem , Blumenvase, 1670, Öl auf Leinwand, Mauritshuis, den Haag, Niederlande.

Wer in nächster Zeit wieder vergebens in der Bibliothek nach einem freien Arbeitsplatz suchen sollte, dem sei der Saal der niederländischen Meister im Kunsthaus wärmstens ans Herz gelegt. Ungeachtet der Tageszeit verweilt man dort zumeist nicht nur in Ruhe, sondern in fast absoluter Isolation. Dies soll indes nicht Anlass zum Kulturpessismus geben, erfreut sich doch das Kunsthaus stetig wachsender Besucherzahlen. Das Interesse an Kunst war immer schon ungleich verteilt und ist es zunehmend so. Das eigentliche Überraschende ist viel eher, dass sich überhaupt jemand für ein barockes Stillleben interessieren könnte: Um eine geschälte Zitrone zu sehen, muss man nicht ins Museum gehen. Das Stillleben ist zu realistisch, um interessant zu sein.

Kunst als Werk der Natur

Dieser Vorwurf ist doppelt ironisch: Nicht nur weil von derselben Fraktion zumeist der gegenteilige Vorwurf über zeitgenössische Kunst zu hören ist – nämlich der unverständlich zu sein –, sondern auch weil die niederländischen Meister ihre Stillleben fast nie direkt nach der Realität gemalt haben. Skizzen und Vorstudien dienten im Atelier beinahe immer als Vorlage, was ab und an dazu geführt hat, dass in einer Komposition Blüten zusammen abgebildet sind, die biologisch unmöglich zusammen blühen können.

Die Maler des niederländischen Barock, zumindest die Guten, geben nicht einfach nur die Wirklichkeit wieder. Viel mehr findet die Natur im Gemälde erst ihre Verwirklichung. Zudem stellt das Stillleben das Natürliche in eine künstliche Umgebung: Die Blume muss stets durch die Vase umschlossen sein. Künstlich ist aber auch die Komposition selbst. Die dargestellten Gegenstände hätten nie auf natürlichem Wege zueinander gefunden. Erst der Wille des Malers hat sie zu dieser Komposition gedrängt. Doch das oberste Ziel des Stilllebens bleibt die photorealistische Darstellung seines Sujets. So willig sich die Dinge auch zusammenfügen lassen, will doch ein jedes naturgetreu abgebildet sein.

Frohen Feyerabend

Nicht anders sei es mit den Wissenschaften, behauptet der Philosoph Paul Feyerabend (1924–1994): Forschung ist, wenn überhaupt, nicht realistisch genug. Eine wissenschaftliche Theorie ist nicht bloss eine Abstraktion aus empirischen Daten. Jedes Datum entsteht erst durch den Eingriff des Wissenschaftlers in die Realität. Keine Beobachtung ohne Beobachtenden. Selbst eine einfache Messung, wie die des Wägens, wächst in der modernen Forschung zu einem hochkomplexen und in der echten Welt nicht zu wiederholenden Prozess heran. Am extremen Ende dieser Evolution benötigt eine einzelne Messung den ganzen CERN. Aber was wir während einer Teilchenkollision beobachten, ist nach Feyerabend kein natürliches Geschehnis mehr: Ohne uns Menschen hätte es diesen Aufprall nie gegeben. Die Annahme dass sich das Universum auch sonst wie im CERN

Leif (37 modulo 10), 21,
studiert aktuell interdisziplinäre Naturwissenschaften und guckt fast alle seine Zoom-Vorlesungen in Schweizer Museen nach.

verhält, heisst so viel Vertrauen in die Wissenschaft zu setzen, wie ein Biologe in die Malerei, wenn er seine Feldstudie lieber vor einem Stillleben als in der freien Natur vornimmt.

Gemäss Feyerabend, dessen Namen die meisten im Student-Village eher vom Amazon-Pakete Bestellen kennen, vereinen wir Wissenschaftler zwei Rollen zugleich in uns: Einerseits bilden wir ausgehend von einer Menge an Beobachtungen unsere Theorien, und andererseits bestimmen wir selbst, welche Menge wir durch die Theorien zu erklären suchen. Wie der Maler seine Blüten, so sammelt auch die Forscherin ihre Beobachtungen zusammen, bis sie sich zu einem schönen Strauss formen lassen.

Natur als Werk der Kunst

Das gesamte Universum vom Virus bis zur Galaxie ist ein solcher Artefakt, geschaffen über Generationen von Wissenschafts-Künstlern aus einer halb willigen halb widerspenstigen Materie, die wir Wirklichkeit nennen. Feyerabend, der vor allem durch sein 1975 erschienenes Buch Wider den Methodenzwang bekannt wurde, sieht hierin die grosse Hybris der Wissenschaften. Niemand von uns hat den Urknall miterlebt. Gäbe es die Wissenschaft nicht, würde heute kein Mensch an eine derart absurde Theorie glauben. Wenn die Menge an zu erklärenden Daten nur lautet {«Die Welt existiert.», «Es gibt verschiedene Materie.», «Es gibt uns Menschen.», ...}, dann ist die Theorie eines schöpferischen Gottes genauso – wenn nicht sogar mehr überzeugend. Erst wenn wir den Datensatz hin zu kosmischer Strahlung, einem expandierenden Universum und Gravitationswellen umdefinieren, gewinnt unsere wissenschaftliche Theorie die Oberhand. Für Feyerabend ist dies tautologisch: Natürlich wird die wissenschaftliche Theorie gewinnen, wenn wir nur Wissenschaftler definieren lassen, was diese Theorie zu erklären hat.

Dieser sich ständig ändernde Satz an zu erklärenden Beobachtungen ist der Grund, warum es in den Wissenschaften nie eine sondern unzählige Methoden und Theorien der Erkenntnis gibt. Forschung ist – wie Malen – eine Frage des Stils. Aber Feyerabend ist kein Relativist: Genauso wenig wie der niederländische Barock einen Hummer mit acht Beinen malen könnte, kann eine Wissenschaftlerin eine Theorie formulieren, die im Widerspruch mit der Realität steht. Wofür Feyerabend plädiert, ist schlicht die Bescheidenheit, als Forschende einzugestehen, dass unsere besten Theorien zwar gut darin sind Flugzeuge zu bauen, aber nicht den Schmerz einer trauernden Mutter trösten oder die Frage zu beantworten, warum es Bewusstsein im Universum gibt. Die meisten wissenschaftlichen Theorien jedenfalls haben eine sehr viel kürzere Halbwertszeit als jene Blumen auf den Stillleben des niederländischen Barock. Aber zumindest garantiert uns der zweite Hauptsatz noch immer, dass auch diese sich irgendwann in nichts auflösen werden.

Sex 101: Learning and Pleasure Curves

Annette Bischof-Campbell, a clinical sexologist and psychotherapist defines an orgasm, considers men and women faking them, addresses our love-hate relationship with tension, and reassures: "Sex is something you can learn."

What do you do in your job?
I teach people to become sex therapists, I do groups and workshops and run a practice, and I operate a website (lilli.ch) for online counselling. I also run a group for women who have a problem with achieving orgasm. They explore, experiment, play, practice, learn to feel more.

Play, practice? Do you mean physically practicing?
How on earth would you learn sexually if you didn't do things physically? Sex happens in the body.

In our sex therapies and our groups, we're incredibly explicit. This doesn't mean that we touch people or that they get naked. But you can do a lot of exploring with people physically where they perceive what's happening in their genital area. If they belly breathe, for instance, or if they clench their muscles. And then some exercise they'll do in the session with me using their fists. And then they'll go home, and they'll do it using their vulva. And the same with the penis. You just use a marker to demonstrate.

Let's say, a person is convinced that one is supposed to enjoy certain things. The person also thinks their partner is really trying very hard, and yet at this moment it's just not working for the person. Many women would say that this is a situation in which the right thing to do is fake an orgasm. Is it?
First of all, you're wrong Lisa. Men fake orgasms.

Men fake orgasms?!
If I ejaculate, that doesn't mean I'm having an orgasm.

Alright then, how do you define an orgasm?
We distinguish between an orgastic discharge and an orgasm, between physical arousal and pleasure. Physical arousal starts with the arousal reflex, due to some stimulus or thought, or rubbing in your pants, or clenching your muscles. Blood starts flowing into your genitalia. It happens quite frequently, and men tend to notice it better than women do. If something happens that raises this arousal, it might reach the point of no return, where another reflex gets triggered. This reflex makes for some rhythmic contraction in the pelvic floor. In men, that is associated with ejaculation.

So how do I perceive this? Do I experience this as pleasurable? Do I feel it? And you would be surprised how many people don't feel it. How many women, for instance, come to me and say, "I don't really know if I have an orgasm. All I know is that afterwards I don't feel like having sex anymore, I am just kind of relaxed." Of course, it's easier to feel an ejaculation. But that still doesn't mean that a guy is really fully aware of what›s going on. An orgasm is Aaah! When I actually experience this wonderful feeling of pleasure going through my entire body. And, as long as they're not feeling it, there are many people that are just orgastic, not orgasmic.

So, how do you help, if someone's not sure him- or herself whether they've had an orgasm?
I draw curves. The y-axis is intensity; the x-axis is time. I draw a green curve, which is physical arousal. And then I draw a red curve, which is pleasure. And then I say, "okay, this is a 20-minute experience. What are you doing? And then? And what is he doing? And then?"

So, the person will try to find out what's happening in their body, and what's happening emotionally. And in the end, this person might realize, "my green curve is actually going to the peak, but the red curve is all the way at the bottom." They are so tense that they don't even feel what's happening in their body.

You might have noticed, tension – clenching your pelvic floor muscles, or your entire body – can be very arousing. We know from research that 70% of people arouse themselves with high muscular tension: 30% of women arouse themselves only through pressure and muscle tension. That's also why BDSM is so incredibly popular! But this tension is also something we associate with being in fight-or-flight mode, negative thoughts, looking down at yourself. That's what I call the sex paradox.

Isn't this tension also what causes sex to be painful?
Exactly! In women, if the core muscles are too tense, the vagina can't get bigger during arousal, can't

Lisa and Gaurav,
study Biochemistry and Energy Science (respectively), and enjoy asking questions that are on everyone's mind.

lubricate, and thus we get pain during intercourse. Also, circulation in the tensed-up area is reduced: so, perception is also reduced. And then people don't know whether they've had an orgasm. And your perception also needs to be focused on the sensations in that area. Further, the vagina doesn't have the same amount of surface receptors the clitoris does. It has receptors beneath the surface, in the muscles. You need a massage there. You need circulation, you need movement: You need to speak an entirely different language.

A lot of men also tend to arouse themselves in a way that's very different from what they experience with vaginal intercourse. They move their hands along their penis. But in order to really get the feeling of penetrating, they'd have to also move their pelvis and really penetrate their hands. Because a vagina often doesn't offer the same pressure or the same friction a hand does. And also, by comparison, the vagina is incredibly large. And the penis is kind of lost in there.

What we want to teach people is different. They should try moving their pelvises towards each other. [Makes a hand gesture illustrating a seesaw motion]. We can also circle [in a plane perpendicular to the axis along which penetration happens], which is great for the vagina, for lubrication. And if we want to intensify these sensations, we can play with our pelvic floor muscles: clench, relax, clench, relax. We can do belly breathing. Moving a lot, breathing a lot – that makes both people feel so much more during vaginal intercourse.

When I said it feels damn good to have the penis inside the vagina, or for the vagina to have a penis inside it, that takes training. It really takes training. You don't attend a single Portuguese class and expect to be immediately fluent. But with sex, people very often think exactly this. Thus, part of sexual therapy is also motivating people to go home, explore, experiment, and practice.

Any advice you'd like to give to people in their 20s?
Sex is something you can learn. If something doesn't feel good, it doesn't mean that you're built in a different way, or that it's definitely not your cup of tea. It could just be something you haven't learned yet.

We also like to encourage people to be more autonomous, to recognize that "this other person might feed me, but they can't have the taste buds for me." Don't tell yourself that, for instance, this other person is doing a bad job, and should know that you don't like this. Think, "it's also my responsibility. First, what I'm putting up with. And second, to find out how I can make things more pleasurable for me. Because it makes a heck of a difference whether I'm lying there like a dead fly, or starting to be more active, to see my body in a different way, to act like a cat."

You mentioned playing an orgasm. I find that interesting, and I'm not totally opposed to that. Do you know the famous scene in the movie When Harry Met Sally? It's fun to do what Sally is doing there. It's fun to actually enjoy this, even if in the moment you say, "I don't really feel like it, but I do it." I'm not going to ask you to do this now – if we weren't holding an interview, but were at my practice, I would – but I can tell you that it does feel good. Something happens if I start using my voice. I get the vibration going, I activate my autonomous nervous system. So, I can actually exaggerate what I›m feeling or what's happening down there. And while exaggerating this, I'm going to actually feel something. There is this "fake it until you make it" aspect. Don't do it because otherwise your partner would be unhappy, blah, blah, blah. But many people are very tense up there, very still. And that needs to be different for this emotional discharge – for the real orgasm – to take place. So, do it to give yourself more pleasant emotions and sensations.

Read the extended version of this interview on our website: *www.polykum.ch*

Geneva Motor Show 2024

As the automotive industry undergoes radical transformation, the Geneva Motor Show 2024 reveals a shifting landscape, prompting reflections on the sector's future direction and the balance between innovation, sustainability, and market readiness.

Alessandro Caucino, 23,
MSc Mechanical engineering. "Life is too short to waste time doing things we don't like." – Raul Gardini

What is the future of the automotive industry? Are European car manufactures ready to switch their production to fully electric vehicles, or will they relinquish their competitive advantage to newer carmakers?

The players

Between February 26th and March 3rd, the 91st edition of the Geneva Motor Show took place. It had been four years since the event was last held in the Swiss city, due to the lockdown for the COVID pandemic and an away game in Qatar in 2023. The most iconic and prestigious car event finally reappeared in 2024, but has something changed in the meantime? The answer is yes. The chip shortage, the increase of fuel cost due to the Russia-Ukraine war, a high rate of inflation in European countries which has increased the cost of new models up to 40% compared to five years ago (source QuattroRuote Italia) and last but not least, the European Union's decision to halt the sales of new internal combustion engine (ICE) vehicles starting in 2035, have all dramatically impacted the scene.

The first noteworthy thing is the absence of prestigious brands: the all Volkswagen Group and other prominent German brands, as well as Stellantis, are absent. Similarly, luxury car manufacturers such as Ferrari, Lamborghini, and Aston Martin are not represented. This trend can be attributed to the increasing influence of online platforms and social media for the debut of new models (Porsche has just launched the new Macan full electric and Volkswagen the 8th edition of the Golf).

Electric cars

We are used to thinking of electric cars as expensive, unaffordable for the average consumer (considering the average salary in Europe) and heavy, with a long recharging time. The new Renault 5 is a game changer. The starting price is 25'000 Euros, it weighs around 1500 kg and has max autonomy of 400 km with a 52 kWh battery pack (it can also be configured to 40 kWh with a range of 300 km). The electric motor is a synchronous wound rotor without permanent magnets, meaning a reduction of rare-earth elements. The most performing motor has 150 hp. Moreover, this model features a funny easter egg: a baguette holder next to the passenger seat. Renault thought about product life extension and circular economy as well. The battery is divided into four modules. If one gets damaged, it is possible to substitute it without changing the entire storage. At the end of the car›s lifespan, the packs are recalled by the original equipment manufacturer (OEM) and repurposed for stationary energy storage applications.

A reinforced trend: Hybrids

BYD is another brand in the spotlight. You may have never heard of it, but BYD concluded 2023 with a record-breaking sales volume, which exceeded 3 million annual sales and became the global new energy vehicle (NEW) sales champion for the second year in a row. Among the new models, it is possible to find both electric vehicles and hybrid electric vehicles. We asked a sale representative why they decided to keep producing hybrid models. This is his answer: "Even though the trend points in the direction of a complete electrification of the new vehicles, many countries, especially the least developed ones, are not ready for such a radical change. There is a lack of infrastructure and recharging stations. The hybrid vehicles represent a solution to smooth the transformation and reduce the emission pollution."

This strategy has been followed even more closely by Toyota. In October 2022, for instance, then-CEO Akio Toyoda said that EVs "are just going to take longer than the media would like us to believe." In fact, Toyota decided to still focus on the hybrid powertrain and limit the new fully electric models. Even though they were strongly criticized, it turns out they were onto something. The carmaker raised its operating profit guidance by nearly 9% for the fiscal year ending on March 31. EV sales in the US grew an impressive 51% last year, according to Edmunds, but hybrid sales were even better, increasing by 63%.

Shared mobility

Many scenarios predict the widespread adoption of shared mobility in the future, particularly in large

Renault 5 e-tech 100% electric

Charged conversation: Navigating the Future of Electric Vehicles

Kimera 038

Silence S04 microcar

urban centres. The carmaker Silence aims to take advantage of this trend. They have presented a new electric microcar called S04. It has an autonomy of 150 km and a max speed of 80 km/h (in Switzerland, it will be electronically limited to 45km/h). The car offers various accessories such as electric window and mirror adjustment, cables for phone charging and air conditioning. During a test drive, I assessed the dynamic behaviour, and I must confess, it sets a high standard. The driver has the choice between three distinct driving modes. The sport mode was especially impressive with its heightened responsiveness, making it adept at manoeuvring through urban traffic with ease.

Sports cars

We have discussed various types of vehicles, yet the subject of sports cars hasn't surfaced. For a passionate car enthusiast, the mention of Kimera is invigorating. This company embodies a singular mission: to evoke pure emotion through their creations. During the Geneva Motor Show, they presented the new Evo 038, which is an evolution of their previous model the Evo 037. The Lancia 037, an evocative name for the rally-passionate, was the last rear-wheel drive car to win a WRC championship in 1983, after an epic battle with the Audi Quattro. This Italian brand had the brilliant idea to take an old Lancia Beta Montecarlo, keep the passenger cell with the chassis number and built a completely new car around it. The result is 600 hp, all-wheel drive, six-speed manual transmission machine which weights around 1100 kg. This "Integrale" version has an electrohydraulic differential controllable from the inside which allows the driver to choose how much power goes to the two axles.

The future of the industry

In conclusion, let's consider a potential response to the question posed at the beginning of this article. During a discussion, the question emerged regarding "where we are and what will happen next." I have documented three answers as I believe they offer representative viewpoints.

Silvio Pietro Angori, CEO and Managing Director, Pininfarina Group: "I am a physicist by education and I have an incredible faith in the future of science. I think that science will solve every problem."

Peter Rawlinson, CEO and CTO, Lucid: "I am an engineer, so I apply physics. By applying our knowledge, we will create high tech cars and we will save the planet."

Luca di Meo, CEO of Renault Group: "I am not a physicist, I am not an engineer, I am rational. That's why I work in the automotive industry and I love it."

These three answers fully represent the spirit that is behind the radical transformation of the automotive industry: faith in science, talent and passion.

Full article on our website: *www.polykum.ch*

Humanity to an alien

They spend their lives in a tiny bubble
A miniature sphere of life
Nestled within the cosmos
Fragile, existing only
In a fraction of space, a decimal point in time

They look up at the brilliant night sky
And gaze upon a billion worlds
Worlds dead and gone forever
Worlds that they will never touch
They do not despair, they do not care

Few fill their mind with questions
Most don't even feebly attempt
To think, to wonder, to understand
The starry sky under which their eyes rest
Shines so bright, yet its light never reaches them

They wander about their lives
Worrying about things that will never matter
Trying to change things that will never change
Quick to quarrel, and fierce in envy
They run, trying to get ahead

And spend lives their lives running
Surroundings blur, moments fleet
But they must get ahead
And they do
They draw closer to their close

Nagging thoughts are pushed deeper
Into a mind which has forgotten to find
Or even bother with its own purpose
Absorbed by the self, they row on
And sail into their own version of reality

.....

I wish I spoke of a mindless barbaric race
But alas that is not the case
They feel love, and they try to understand,
Understand concepts and imagine things
That may never stick into their web-work of synapses

Some yearn for meaning, for answers
They look down below and up above
Dissecting the reality that lies before them
Albeit slowly and painfully,
They learn.

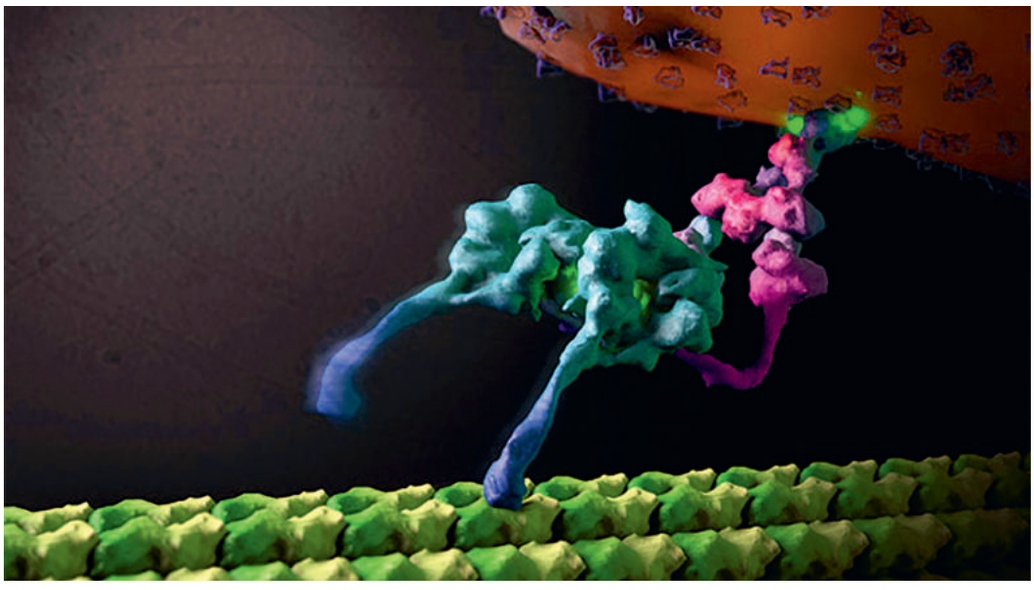
Between light years of vacant space
A race of dreamers
Minds which can fathom the impossible
And perform the unthinkable
Undfraid, they stare back in the face of darkness

Whilst some seek a different joy
They care for their fellow men
Kin or stranger, lover or foe
They see suffering in the eyes of the wanderer
And feel the need to tend to their wounds

Grow, rise and shatter the shackles than bind them
And lend their strength to comrades in battle
To those whose life is but a skirmish
Many may perish, unable to rise again
But the spirit of humanity endures

They fight, against odds
Love, beyond boundaries
Find light where there is none
Tearing through their lives, watch them run
Because, after all, they are only human.

Gaurav , MSc
Energy Science and Technology,
is not alien to human life.



Bildquelle: neurosciencenews.com

Innerer Monolog zweier Motorproteine

Teil 1: Das Klagelied eines quengelnden Dyneins
So langsam tun mir die Füsse weh. Schon seit einer gefühlten Ewigkeit laufe ich hier einem Microtubulus entlang. Mal ganz ehrlich: ein Axon ist einfach zu lang. Wäre ich ohne Gepäck unterwegs, ginge es vielleicht einfacher. Aber nein, ich muss ein riesiges Mitochondrion hinter mir herschleppen. Anscheinend hat es den Geist aufgegeben. Irgendetwas von wegen reaktiver Sauerstoffspezies. Keine Ahnung. Jedenfalls soll es jetzt zurück zum Zellkörper des Neurons, damit es degradiert werden kann. Und gerade ich bin der unglückliche Auserwählte, der es dahin bringen darf.

Meine Kollegen eilen hin und wieder an mir vorbei, beladen mit kleinen Proteinen und Vesikeln, während ich nur langsam vorankomme. Kurz nachdem ich losgelaufen bin, hatte ich schon keinen Bock mehr. Ich habe versucht, zurück zur Synapse zu laufen. Aber anscheinend ist mir anterograder Transport verboten. Aus der anderen Richtung kreuzen mich Kinesine, beladen mit Proteinen, Vesikeln und frischen Mitochondrien. Irgendwie sind sie sehr freudig. Ich verstehe nicht, wieso.

Jetzt stehe ich im Stau. Wir haben die maximale Kapazität des Microtubulus erreicht und stehen dicht gedrängt. Ungeduldig warte ich darauf, wieder ein ATP hydrolysieren zu können. Hier im Axon gibt es nicht einmal etwas Besonderes zu sehen: Jede Menge Calcium- und Natriumkanäle in der Zellmembran in regulären Intervallen, hier und da ein paar Organellen. Gerne wäre ich im Zellkörper, wo ich immerhin den Zellkern bewundern könnte. Zum Glück geht es jetzt endlich wieder vorwärts.

Ich habe es geschafft! Endlich wird mir meine Last abgenommen: Eine riesige Membran verschlingt mein kaputtes Mitochondrium. Ohne das geringste Dankeschön. Naja, das wäre auch zu viel erwartet. Gerade hat mir jemand ein kleines Protein an eines meiner Lysine angehängt. Was soll das? Ein bisschen verloren drifte ich umher. Keine Ahnung, was ich jetzt machen soll.

Teil 2: Der Aufbruch eines munteren Kinesins
Endlich darf ich loslaufen! Schon seit meiner Synthese freue ich mich darauf. Ich kenne nur den Zellkörper meines Neurons und ich kann es kaum erwarten, den Rest der Zelle zu entdecken! Ich habe einen weiten Weg bis zur Synapse vor mir, aber ich habe starke Beine und darf sogar ein kleines Protein mitnehmen. Zusammen werden wir die Welt erkunden!

Zur Erklärung
«Dynein» stammt von dem griechischen Wort «Dynamos» (Macht), während «Kinesin» von «Kinesis» (Bewegung) kommt. Sowohl Dyneine und Kinesine sind Motorproteine, die in der Zelle an sogenannten Microtubuli (Filamenten) entlanglaufen und Fracht transportieren. Sie sehen wirklich so aus, als hätten sie kleine Beine. Videoempfehlung zur Illustration: The Inner Life of a Cell Animation von XVIVO Scientific auf Youtube. Ein Kinesin taucht bei 1:15 auf.

Léona Dörries, BSc Biochemie,
hat jedes Mal Freude daran, den etymologischen Hintergrund wissenschaftlicher Nomenklatur zu entschlüsseln.

Iron, Capital, Empire

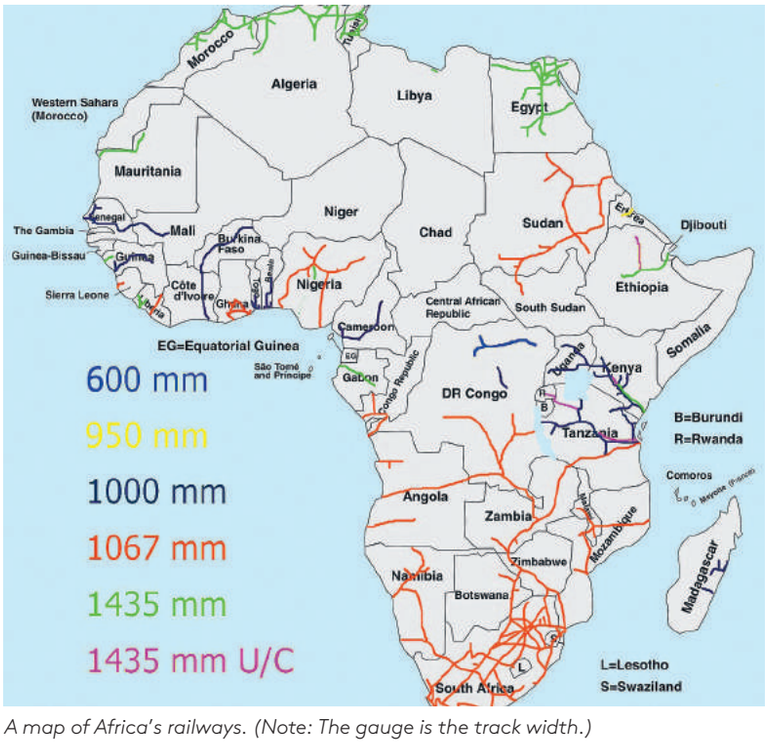
At first glance, the railway might seem like a simple feature of our modern landscape, primarily serving the practical purpose of shuttling passengers and goods across and within bustling cities. However, for many countries with a colonial past, these steel tracks, built by empires, were not simply lines of transportation but lines etched into the land, marking a chapter of dominance and control.

Ritvik Ranjan, 24,
MSc Computational Science and Engineering,
and is"not like the other guys".

The construction of railways, especially in the colonies of industrialized Europe, was not merely infrastructural but a cog in the vast machinery of European imperialism. Historian Ronald Robinson notes that railway building was an informal empire-building tool underpinning European expansion. This narrative is vividly illustrated through the railroads and transcontinental lines that stretch across continents, embodying the ambitions and designs of colonial powers. To understand the workings of these informal empires and their reliance on local collaborators during the age of imperialism, one must investigate the origin of railway construction.

Our journey begins by observing the distinctive way these railway lines snaked across continents, often bypassing the interior, and concentrating on outward routes towards ports. This stark pattern exposes the primary purpose: to serve the economic interests of the colonizers, not the needs of the colonized. Through this exploration, we aim to uncover the complex relationship between railways and colonialism and how these iron threads continue to weave their stories into the fabric of the past and present.

Source: Wikimedia Commons, "Africa railway map gauge"



A map of Africa's railways. (Note: The gauge is the track width.)

Africa

Take a map of Africa during the height of European imperialism and trace the railway lines that snake across the continent. You'll notice a stark pattern: these iron veins primarily bypass the interior, instead reaching outwards, like tentacles, towards the coast. This deliberate design exposes the true purpose of these railways - not to connect people or facilitate trade within Africa but to serve as arteries for extracting resources and funnelling them out to European markets.

Walter Rodney, in his seminal work "How Europe Underdeveloped Africa", argues that colonial infrastructure, like roads and railways, was not built with the needs of the colonized in mind; instead, they were tools of economic exploitation, their geographical distribution dictated solely by the desire to access and export valuable resources like gold, manganese, coffee, and cotton. These lines did not connect diverse African regions, nor did they facilitate internal trade among Africans. They were, quite simply, "built to make business possible for the timber companies, trading companies, and agricultural concession firms" – a testament to the disregard for African development and self-sufficiency.

The construction of these railways further highlights the brutal nature of colonial rule. Unlike European and American railway projects, which relied heavily on capital and high wages to incentivize workers, colonial Africa saw a reliance on forced

labour. With minimal investment of capital, colonizers mobilized vast workforces through threats, coercion, and violence. Rodney starkly contrasts: "In Europe and America, railway building required huge capital inputs [...]. In most parts of Africa, the Europeans [...] offered lashes as the ordinary wage and more lashes for extra effort."

Turning to specific examples, we see how these colonial machinations played out. In South Africa, for instance, trunk lines were strategically built to connect diamond and gold mines directly to ports, ensuring a smooth flow of wealth outwards. Even grander ambitions, like Cecil Rhodes' Cape-to-Cairo railway, were driven by imperialistic motives to solidify European control and further facilitate resource extraction.

This glimpse into the history of African railways serves as a potent reminder of the lasting impact of colonialism.

America

Across the continent, Mexico offers another facet to the complex relationship between railways and colonialism. During Mexico's Porfiriato period, from a mere four hundred miles in 1876, the network surged to over 11'000 miles by 1910. This rapid growth was largely fuelled by American capital from companies like Southern Pacific and Santa Fe.

The new infrastructure functioned as an economic engine, linking mines and agricultural regions to ports, enabling the efficient movement of raw materials like silver, copper, and agricultural products for export, generating significant revenue for the government and foreign investors. However, this progress came at a price – the construction often dispossessed Indigenous communities and small farmers, leading to displacement and loss of livelihoods. Furthermore, the initial encouragement of foreign investment ultimately resulted in significant control of the Mexican economy, particularly in the mining and railway sectors, by the American capital. This uneven distribution of benefits fuelled discontent, with specific industries and regions flourishing while others remained excluded from the economic boom.

The experience of track laying across these two examples, geographically distinct and with unique histories, bears a common theme – subjugation and exploitation – either by direct colonialism and/or by the foreign capital. The project of railroad expansionism in Africa and Mexico, as in many other colonies/states, was not conceived with the interests of the regional subjects in mind. The inhumane displacement and exploitation of local peoples to execute these imperialist visions bears testimony to this fact. A debilitating impact on people's present and future livelihoods with the systematic loot of the nation's natural resources and resultant foreign ownership of vital sectors of the economy accompanies the origin of railway construction in the former colonies. This history calls upon us to challenge the narratives of "modernization via colonization" or those of seemingly innocuous foreign economic investments that persist among people today. That these narratives are deeply entrenched even within the minds of people from formerly colonized nations is but an indicator of the long way the postcolonial project has yet to go.

Slow Down

Speeding through our crafted dreams,
Lost in the blur of urban seas,
On this modern track we're bound,
We're racing on, lost, not found.

Do we ever pause to see,
Our concrete world, a fantasy?
We're moving fast, can't seem to find,
Nature's rhythm, left behind.

MOTION

Alisa, 23,
MSc Physics, wants everyone to take a deep breath and look around.

Moving Machines

Most robots are built to efficiently fulfil specified tasks – industrial robots being the best example. Yet robots can also accomplish fascinating movements – inspired by animals, humans and fiction – which may only ever find a specific commercial application in the future, if ever.

Automata have a long history. One could argue that contributions from Alexandrian engineers to hydraulics – movement effected by exerting pressure on incompressible fluids – and pneumatics – movement effected by exerting pressure on gases – started the development of what one might consider robots. Fascinated by the concept of mechanical servants, humanity already thought of them as self-willed beings. Leonardo da Vinci was among the first to not only envision, but also design a simple humanoid robot. But, for a long time, these human-like machines remained more of a vision and were more entertaining than useful.

While today function is often prioritized over form, we still have robots advancing in the aesthetics of movement. Acknowledging that form can contribute to function, those robots are gaining practical applications. The characteristics in a robot's movement convey unique personalities to us through anthropomorphism and shape our perception of the digital world.

Modern robotics rely heavily on computerized control. Before, we used pneumatics, logic, and remote control to accomplish simple limb movements. Hydraulics, and pneumatics dominated initially. Now, electric motors are the norm, due to their precision and high torque. Besides, they make for far less intimidating robots – not needing compressors or spilling oil all over the place.

Spherical Robots

Comprising a spherical shell and, inside, controls and a moving mass, these robots can roll across surfaces. This makes them very flexible, as they do not have a designated front or back. Their shell can protect them from water and solid objects. One application might be the inspection of pipes. Star Wars' BB-8 is a well-known spherical robot.

Self-balancing Robots

To keep a (two-wheeled) robot balanced on an uneven terrain takes high-torque motors and a sophisticated control system. Being essentially an inverted pendulum, the robot should be able to compute and then execute the necessary actions for restoring itself to equilibrium. The ETH spinoff Ascento built such a robot. This one can also jump on and over obstacles.

And professor Raffaello D'Andrea's team built Cubli, a cube that balances on its tip with reaction wheels. Overall, much progress has been made with self-balancing systems, leading up to SpaceX's self-balancing rockets.

Animal-like Robots

Evolution has led to animals moving in very energy-efficient ways. Copied from nature, animal-like robots rely on mechanical intelligence – inherently efficient systems. Humans tend to naturally form strong bonds to these robots – think of robot dogs that get shown off at every occasion. It's fascinating to see that animal-like robots are not immediately perceived as a tool but rather as an entity. They are fun to play with, but the focus in their development lies mostly on the optimization of their motion and maneuverability.

Quadrupeds such as Boston Dynamics' Spot mimic animals with four limbs. The development from Spot's predecessors Big Dog and LS3 shows how inspiration from nature is used to optimize robots: The introduction of knees now allows for better energy handling. ETH also has the successful spinoff ANYbotics with its ANYmal quadruped that may be seen around campus.

Micro robots are similarly intriguing. Harvard University's RoboBee is a miniature robot imitating bees. It weighs less than 0.2 grams while being over 3 km/h fast. Its nimble appearance is perfectly complemented by its capable miniaturized technology. One can envision their use in rescue operations or environmental monitoring – and more troublesome, monitoring people.

Humanoids

A machine fitting in with humans is a tall order. As it happens, we meet humans on a daily basis, and notice every slight deviation. One might question whether we have even reached the uncanny valley yet. The differences we notice between humanoids and ourselves highlight facets of human behavior we have yet to fully understand. Due to human complexity, most humanoids focus on one specific aspect: One is facial expressions. Abel is a robot that's mostly a torso with a realistic modelling of a child's face that can show various emotions. Abel detects the emotions of the people around and acts

Simon Sure, 20,
BSc Computer Science, loves all things tech and to get around to experience and discuss the philosophical ramifications of our digital future.

accordingly. There is a debate to be had about the value of human-robot interactions against purely human ones. I believe they will complement each other in the future.

Another aspect is movement. Honda's iconic ASIMO, introduced in 2000, was one of the first to demonstrate bipedal locomotion. Boston Dynamics' Atlas provides a more recent example. It is hydraulically actuated and capable of various impressively advanced movements, including backflips. Such speed and power require superb terrain awareness and short-term prediction capabilities. While its walk and run don't quite look human, it's superior in other areas. I, for one, at least can't do a backflip.

Finally, there are humanoids with a real-world impact. In a world designed for humans, humanoid robots should be the best generalists to perform the widest range of tasks. We want robots to fit in with our society. Yet to be practical, humanoids must walk properly, have good manipulation, payload handling, and a good understanding of their environment. The Figure 01 from Figure is one of the first commercially viable options. Through a collaboration in the car industry, these robots are currently being integrated on the manufacturing floor.

Another special humanoid is Sofia, an early attempt to integrate humanoids deeply into our society. In 2017, Sofia was granted Saudi Arabian citizenship. Despite the lack of serious impact, this is a surprisingly direct demonstration of the political will for progress – and not true to the current state of robotic skills for political affairs.

Soft Robots

A minority in a world of metals and plastics, soft robots are made from soft materials. Being soft, they can flex and deform, making them safer to operate. The Vine Robot can go through holes, tolerate punctures, and is suitable for exploring new environments, driven by compressed air. The vine robot grows by expanding at its tip and turning its body material inside out with internal pressure.

What's next?

The majority of robots in use today don't show off with clever locomotion. Industrial robots like large robotic arms demonstrate precision and power but not elegance. The fancy robots are mostly concepts: Their creators present what could be done if we pushed technology further. Current advancements combine separate achievements to create more complete and capable robots beyond select demonstrations. Humanoids that would go beyond gimmicks are not that far off in the future. For now, though, elegant robots still have to find their place.

Vom Unterwasser-rugby zum tanzenden Hummer

An einem schicksalhaften Sommertag, beim Pre-Study-Event ihres Studiengangs, wurde unserer Autorin dazu geraten, «nicht gleich drei neue Hobbys anzufangen». Sie hat sich diesem Ratschlag bewusst widersetzt. Warum es wichtig ist, Neues zu wagen und die eigene Komfortzone zu verlassen – ein Plädoyer.

Michelle Freyer, 21, MSc. Interdisciplinary Sciences,
Findet immer wieder Halt in gewohnten Abläufen, will aber auch auf abgefahrene neue Erfahrungen nicht verzichten. In einem Hummerkostüm zu tanzen ist sehr spassig, aber vor allem heiss.

Von Gewohnheitstieren und dem Verlassen der Konfortzone

Wir Menschen sind bekanntermassen Gewohnheitstiere. Wir sitzen gerne jedes Mal am gleichen Platz in der Vorlesung, bestellen in unserem Lieblingsrestaurant das gleiche Gericht oder greifen beim Gang zum Supermarkt stets zur gleichen Sorte Sojamilch (ungesüsste Sojamilch von Alnatura, schäumt gut und top Preis-Leistungsverhältnis). In vielerlei Hinsicht ist Routine ja etwas Positives: Sie kann uns im stressigen (ETH-) Alltag Stabilität und Sicherheit bieten und unser Zeitmanagement verbessern.

Andererseits ist der Ratschlag, man solle doch mal seine Komfortzone verlassen und etwas Neues versuchen sogar schon eine Art Volksweisheit. Was soll man nun mit diesen beiden gegensätzlichen Ansichten anfangen? Meine Antwort: Es kommt wie beim Backen von Schokokuchen ganz auf die richtige Mischung an. Man darf weder zu viel Zucker noch zu viel Kakao reintun, sondern muss auf das richtige Verhältnis achten (wer sich für das Rezept meiner beliebten Schokoladentarte interessiert, kontaktiere mich direkt).

Raus aus der Komfortzone

Ich habe lange Zeit nicht so viel auf Abwechslung gegeben. Ich war glücklich, in meiner Freizeit denselben Hobbys nachzugehen. Gerade durch die ETH hatten Studium und Lernen eine höhere Priorität und ich war der Ansicht, da wäre nicht viel Platz für Abwechslung und neue Aktivitäten.

Der Wendepunkt?: Unterwasser-Rugby. Ihr fragt euch jetzt: «Was ist das?» und das war auch meine Reaktion, als mir jemand ganz nebenbei davon erzählte. Die Antwort: Eine Ballsportart, bei der in einem tiefen Schwimmbecken getaucht wird. Dabei sind zwei Körbe an gegenüberliegenden Seiten des Beckenbodens und jedes Team versucht, den Ball in den Korb der Gegner zu bringen. Durchs Tauchen findet das Spiel in drei Dimensionen statt und um es noch interessanter zu machen, darf man sich gegenseitig unter Wasser tackeln. Ich war sofort interessiert und als ich erfuhr, dass man über den

ASVZ reinschnuppern konnte, wagte ich den Versuch. Die (Vor-)Freude und Motivation gaben mir einen positiven Schub. Man unterschätze nicht, wie sehr man sich darauf freuen kann, in einem Schwimmbecken mit einem Ball zu spielen!

Letzten Endes bin ich nicht beim Unterwasser-Rugby geblieben. Ich bevorzuge eindeutig Sportarten, bei denen man nicht die ganze Zeit das Gefühl hat, zu ertrinken. Dennoch war es eine schöne Erfahrung, die sich positiv auf mich auswirkte. Natürlich kann man altbekannte, liebgewonnene Hobbys geniessen, Neues und Unbekanntes gibt aber eine andere Art von Nervenkitzel: Man weiss eben nie, was dabei rauskommt.

Abwechslung ist die Würze des Lebens

So hinterfragte ich meine bisherige Einstellung und wagte immer wieder Neues. Ich ging Boxen, nahm am Schweizer Frauenlauf in Bern teil, probierte ein neues Musikinstrument aus, gründete einen Schreibclub, buchte einen Tanzkurs und dann noch weitere, übernahm ein Sprecheramt und organisierte grosse Veranstaltungen, begann Japanisch zu lernen, liess mir ein Tattoo stechen, spielte Dungeons and Dragons und bingte in der Prüfungsphase alle vier Staffeln von «Attack on Titan» (der düstere, verzweifelte Vibe der Serie passte sehr gut zu meiner seelischen Verfassung während der Prüfungen).

An Vielem, was ich ausprobiert habe, bin ich letztendlich auch irgendwie drangeblieben. Dabei habe ich nicht nur meinen Erfahrungsschatz erweitert, sondern auch tolle Menschen kennengelernt, die inzwischen einen festen Platz in meinem Leben haben und es unglaublich bereichert haben. Ehe ich mich dann versah, fand ich mich in einem grossen, knallroten und plüschigen Hummerkostüm wieder, Cha-Cha-Cha und Rumba tanzend mit zwei noch grösseren grünen Dinos (wer peinliche Fotos sehen will, der durchsuche die Fotos auf der Tanzquotient-Website).

Die goldene Mitte aus neu und bewährt

Neben all den (verrückten) Aktivitäten in letzter Zeit, habe ich es trotzdem geschafft, eine gewisse Alltags- und Studienroutine zu erhalten (ein guter Schlafrhythmus ist besonders wichtig. Gerade, wenn ich den interessanten Tagesrhythmus meiner Mitbewohner sehe). Ich gewinne Zeit, wenn ich bestimmte Dinge plane, bin in mancher Hinsicht sehr durchorganisiert (plane z.B. Einkaufen und Kochen für zwei bis drei Wochen im Voraus). Alle neuen Hobbies auf Dauer in feste Abläufe einzubauen ist mal mehr, mal weniger erfolgreich... Doch damit kann ich leben, denn das ist es allemal wert!

Gabrielle Vance, 34,
Earth Sciences Doctorate, stays at rest unless acted upon by an Hérens cow. See more cartoons on Instagram @gabrielle_t_v.

Moving.

A spark of adrenaline, a drop of apprehension, a bold leap into the vast unknown. Whether settling in another city, another country or the other side of the world, the word 'moving', much like the act itself, carries a myriad of contrasting feelings, spanning the entire spectrum of human emotion. ***by Marina Morisod***

It's no easy feat, is it? In the corridors, at the tram station or nestled in a quaint coffee shop, a book cradled in one's hands – reality unfolds before us with curious eyes and new faces, strangers eager to explore the city. Even with the most genuine motivation in mind – like that of the many souls at ETH who may have arrived in Zurich with a specific academic or professional goal – relocating reveals itself as a double-edged sword, gleaming one day and shrouded in nostalgia the next. What can we do in those times, then?

I find myself in a new city, and the excitement is gradually morphing into a strange fear – here I am, surrounded by uncharted potentials, and the initial thrill begins to wane. What do I do? What can be done?

Adapting to a novel environment while combating homesickness and loneliness can be the beginning of a downwards spiral, but it certainly doesn't need to be – and our daily life could be made so much easier by tinkering with our behavior here and there, slightly, just enough to make it more enjoyable. Some say connection is key, and it is tempting to believe them. The voice of loved ones, even heard over the phone from miles apart is a comforting echo of home. Regular communication becomes a source of support and encouragement, as does crafting long-term plans and projects for reunions. Having something to look forward to can offer emotional relief, particularly in the early days. Building connections can extend beyond existing relationships to new groups of people. In international cities, there is an abundance activities for students and expats, with dynamic clusters of like-minded individuals eager to connect. A casual drink at the college pub, a volleyball game by the lake or immersion in a cultural exhibition can swiftly turn into opportunities to get together. In this mindset, friendships often find their roots in shared hobbies – the handball championships or painting classes we cherished back home need not be abandoned – they likely exist here as well.

Bild: Fotokommission ETH Alexander Eggerth

Look around – a new place is synonymous with a million small discoveries. Strolling around and spontaneous explorations, whether in the company of others or solitarily, are all great ways to navigate unfamiliar terrains. Becoming a part of the local community, saying hi and attempting a few words in this new language – these are all tiny steps in the right direction, where the city becomes less theirs and a bit more mine.

I have asked around, as we all have, and there is no one-size-fits-all method for transforming a new place into a familiar one. Echoes abound of cities being more open, more welcoming, or easier to integrate into. And while those perceptions may hold some truth, they do not alter the fact that we are here, now, today. Regardless of how isolating it becomes, or how uncertain our thoughts might be, seizing the moment is the only path forward. What worked for some in the past may not be universally applicable, but let's bear in mind that it is a process – a series of days we think we have got it all figured out, and nights we yearn for the comfort of home.

Looking around, we might discover that we are by far not the only soul in this situation. When seated at a cafeteria table, overhearing a familiar language, we might remember to smile, nod our heads, and start a conversation. And before we realize it, one day, almost imperceptibly, the unfamiliar city might start to feel a bit more like home.

Pilates – a Core Investment

As students of ETH and UZH we are lucky to have access to an extraordinary sprots program called ASVZ. Although Pilates was not necessarily my first thought when considering a sports class – I had been thinking more along the lines of Burner Games or fencing – I followed my roommate's invitation.

Bild: Unsplash.com/ Ginny Rose Stewart

Prior to trying Pilates I had some preconceived notions. For one, I did not consider it a sport. Rather I thought it a mere excuse to pass relaxation and stretching as sports. Further, probably due to its coined public image in the media, I thought I'd look silly as "the only man" in the session and considered it moreover a pastime for those who convinced themselves, they would tip their work-life balance in favor of life with a 60-minute Pilates session in the morning.

But eventually, we went to the CAB Move Pilates session on a Thursday morning. Bare feet or with socks – whichever you feel comfortable with – you place your towel on the mat and sit down. What came next I considered thoroughly underwhelming. I considered it very easy, child's play maybe even a piece of cake. All one had to do, is to focus on your breathing and do a few core exercises. Yes, at the beginning you might not know for how long you will have to hold a position, in fact, you might expect to hold that position for a minute, but after fifteen seconds you'll be relieved to find yourself relaxing again.

But here follows a more differentiated account of my first Pilats experience:

My first Pilates class felt like a game of Twister on steroids. Left foot on the blue, right hand on the red, and oh, don›t forget to engage your core! That is the part that probably makes Pilates what it really is. You have to execute all the exercises slowly, in control, hold them for a while and engage your core. Done this way, Pilates can really help people improve their posture whereas I copied what the other people were doing in the room, while trying to decipher the instructor's cryptic cues.

Let's talk about the elusive Pilates breath – it certainly eluded me. Apparently, it's the secret that turns a simple movement into a core-engaging masterpiece. Picture this: A room full of people trying to synchronize their breath like a malfunctioning choir, resulting in a symphony of inhales and exhales that resembles a confused wind orchestra. One person seemed to be the breathing conductor as his in- and exhaling filled the entire room, which allowed everyone to try and follow his perfected rhythm.

The more I read about it, the more I realize: I did not do the exercises properly. Today, many football, basketball and baseball players use Pilates training, as it can help them improve their throwing skills, concentration, and even with their lung capacity. Developed originally by German body coach Joseph Pilates in the 1920s, who suffered from asthma, rickets, and rheumatic fever as a child, this form of exercise still helps professional athletes today to improve their physical strength – and their careers depend on it. One devastating injury is enough to risk their future. Hence, to prevent these injuries is a core investment – literally (and figuratively).

Thus, I'm starting to think that even workouts considered as easy can be effective. Pilates combines many benefits, and by joining a Pilates class, you can do something that is really good for your body, not only in keeping you fit, but also in terms of injury prevention.

The next time I do Pilates, I will visualize how Lebron James executes the exercises – what's good enough for him...

Simon Streuli, 23,
BSc in Computer Science

Always move forward

Year 2149 - Emergency Vault beneath the Secret Rebel Base

Francis was still standing near the entrance of the vault with his chin in his hand, watching the small group of rebels pouring inside. He was finally relaxing.

These rebels were not used to this kind of emergency operation; they were mostly scientists, engineers and physicians. That was the main reason the process was so slow. But nevertheless, they managed to get the last supplies and equipment inside the vault. Now they could finally seal the metallic door that separated them from the upper levels.

"It's all set, Captain," said one of his assistants.

"Okay, let's do the final checks. Then we can proceed with the sealing," Francis responded firmly, trying to hide his relief. A couple of seconds later, when the doors were starting to close, a woman rushed to them and screamed: "Stop, Captain! We can't close now!" She was panting and her desperate tone made Francis worry again. He knew that something was bound to go wrong.

"What now?"

"We lost contact from the history and linguistic division." Francis' face became red and his worry turned into anger.

"What do you mean you lost contact?"

"They had to go back up to take some material and now they're not answering calls."

"Alright. Stop the procedure!" he shouted, then he put his face in his hands in desperation. The linguistics division was the whole reason Carl had set up the revolution, and now they were lost.

"And you!", he addressed the communications operator again. "Get them on my receiver at any cost."

"Yes sir!" she said in a broken voice. Ten endless minutes passed, but finally she came back with the head of the division on the phone: "Where the fuck are you?" shouted Francis. The head of division's voice came out chirping from the speaker: "I apologize, sir. We had difficulties finding some vital materials, but we are on our way. We are two floors away from you."

"You better get your ass here immediately, Professor!" answered Francis. But at that very moment a powerful rumble shook the entire base, and the contact broke.

"What was that?" The steel walls were still trembling. Another voice came out from the communicator, from the surface monitoring department: "We registered a massive nuclear explosion centered in the Capital!" Francis simply lost all his emotion. His whole world was falling apart. The voice continued desperately: "We have to seal the vault immediately or we will be hit by the blast wave in less than two minutes!" Francis stood in silence for an instant. They could never make two floors in time. Carl couldn't help him anymore, now he had to make the decision and take all the responsibilities. But he did not really even have a choice. "Seal the doors!"

Year 2363 - Somewhere in the Waste Lands

Annika had just finished her morning lecture. She had turned 16 that year, and she was starting to feel tired about all that shit. They learned to read Ancient from an early age and then studied thousands of holy books. The texts all seemed to be about a strange fictional world, but most of them made little sense and were therefore not even slightly useful. At least, that was what she thought. But according to the Creed, that knowledge had to be preserved at any cost. Everything in their lives was about the Creed, and she was starting to feel tired about that, too. Fortunately, not everyone in the Tribe had to follow the path of Professorship, and this was her last year of compulsory education.

However, there was at least one topic in the Creed she was still fascinated by: The Big Circle. It was a huge area of the Waste Lands that was said to be impossible to survive in. No one really knew exactly what it was and how it was formed, but it was common knowledge that it was in some way connected to the Great Catastrophe. Annika didn't really know what that was all about, but she was attracted to the mystery of the place. And this year, the migration path was going to skirt the Circle. She usually hated the departure days and the nomadic lifestyle in general. This time, however, she would have the opportunity to have a glimpse of the Circle for the first time, so she rushed home excitedly to help with the preparations.

She lived alone with her grandmother, who was a former Professor. She always praised the teachings of the Creed and wanted Annika to follow the same path. They often argued about this. Annika was starting to feel a bit oppressed, even though she loved her grandmother, who was her only family, very much.

When Annika arrived home, her grandmother had already started packing for the departure, so the girl started to help her.

"How is school going?" asked the old woman.

"Fine," Annika responded in a bored tone.

"Oh! You are a very smart girl, you know. You've always been good with Ancient, since you were a child." She laughed happily while recalling some old memories. "Such a pity that all this talent will be wasted..."

"Here we go again!" thought Annika. She was about to start yet another of their usual arguments, but she stopped herself. She didn't want to spoil the excitement of the day. "How long do you think the trip will last this time?" she asked instead.

Alberto Spalvieri, MSc Physics,
always enjoys well-told stories regardless of the medium.

Generated with DALL-E

"If we are not slowed by any inquisitorial outposts, three or four weeks, I think," her grandmother answered.

"Well, we haven't had any problems for years now. Maybe they've forgotten us and we can finally settle down somewhere," Annika said hopefully.

The Tribe was thought to bring misfortune and hated by the rest of the Waste Lands population. She didn't really know why, but it was probably due to the multiple references to the Catastrophe in their Creed, so everyone thought they were somehow responsible for it. In past years, they had often been attacked and mistreated by the rest of the population. This, she thought, was why the nomadic Tribe was forced to survive by rummaging through metal skeletons and settling for leftovers.

"Don't be silly, my dear." The voice of the grandmother was deep and grave. "We will never stop our journey towards the future. As the most important lesson of the Creed says: Always keep moving until you find what you seek." She fixated Annika with a stern gaze.

"Oh, c'mon, Nan. What are we searching for, anyway?" demanded the girl.

"Our duty is to preserve the knowledge of the Ancients and spread it throughout the Lands, so that the day of rebirth may come."

Annika had enough of these superstitions and decided to end the conversation.

A week passed, and the convoy was finally approaching the Big Circle's border. They reached a canyon a couple of miles from the border and stopped there for the night. Annika decided this was her chance to sneak out and finally go see the Circle. She walked for half an hour and finally reached the plateau. There it was: an endless plain, strewn with metal skeletons covered in dust, stretching to the horizon. This was the Big Circle. She stared at its terrifying beauty in complete silence. Only the gentle rustling of the wind filled the nighttime air.

Suddenly, a rumble of rage and screams of terror reached her ears from behind. She turned back to her camp and a terrifying sight filled her eyes. All the tents and wagons were ablaze. People from the Tribe were running around in fear, being slaughtered by the blades of the inquisitors. Some tried to fight back, but their attackers were numerous and organized. Those years of peace had only been the calm before the storm. Annika was petrified. She stared hopelessly at the dreadful sight without being able to move a muscle. Her entire life was being destroyed: her friends, her school, her books, her Nan. She nearly rushed down the ridge to meet the same dramatic fate. But a voice woke her up: "Look, there's another one. Go get it!" a man shouted from underneath, pointing at her. She suddenly remembered what her grandmother had told her over and over again. It was the only thing she had left. She turned towards the forbidden land of death she had sought out with such curiosity and started to run.

Year 2363 - The Secret Vault

Thomas was a bit late to work that day. He lazily turned on the monitoring equipment and sat on his usual chair, ready for another boring day of nothing. He would probably become the last operator to use that equipment; the Council was debating shutting down the Monitoring Office. Over the last 200 years, there had been no sign of life on the surface due to the unbearable levels of radiation, except for a few resilient insects. In the early days, there had been some expeditions to the surface, but by now it was firmly established that no one could survive there.

Today, however, he went through the usual protocols, and soon noticed something was off. A small source of heat had been registered moving through the land during the night. "Maybe some new species," Thomas thought. He decided to send out the drone and check. He searched for half an hour, looking around the area where the signal was last recorded. He was about to dismiss it as an error when he noticed something curled under the ancient remains of a building. When he zoomed in, he was surprised to find not an insect, but a human girl.

Annika was found in terrible condition, mostly due to the effect of nuclear radiation, but fortunately the advanced medical techniques of the Vault were enough to save her.

When she first regained consciousness, she was shocked. Everything felt like a dream and a nightmare. It seemed impossible that that terrible night and the fantastic things she had read about all her life existed in the same world. She was asked a lot about the

overland by multiple scientists and doctors and felt very overwhelmed. When she was finally able to walk again, Thomas decided to show her around.

"We were able to make numerous developments in medicine, engineering and all the other fields of science." He spoke with a strange accent, and many words didn't mean anything to Annika. Artificial bright light illuminated the thousands of households and buildings built inside the metallic walls of the Vault as they walked along the suspended paths. "We were even able to expand the underground structure, in order to meet the needs of our increasing population. Sadly, we lost all knowledge of the past world. That's our biggest regret and shame. We let down our Founder." To Annika, everything seemed like a fairytale.

They finally reached the main square, at the center of which stood a statue. It was a metallic cylinder with a transparent window on the side, which showed a blue liquid filling the inside. "Here!" Thomas gestured towards the statue. "This is our last symbol from the past. It's called the Sleeping Man and is believed to contain an inhabitant from the lost world still capable of being awakened."

Annika approached the statue and passed her hand over the metallic surface.

"Many scientists tried to study the device and unravel the content. But apparently, it is very fragile, and any damage would mean losing the last vestige of the world our Founder wanted to recover." Annika examined the statue a little longer and noticed a sequence of symbols on one of the sides. "Cryotech. Name: Todd McGuffin. Age: 53. Born in Northampton, England", she read. "What?!" gasped Thomas. The symbols were Ancient writings!

Year 2381 - The Secret Vault

The day had finally come. The square was crowded with people trying to get a glimpse of the momentous event that was about to occur. After many years of study and thanks to the advanced medical techniques of the Vault, Annika and her team had finally figured out how to bring back the Sleeping Man. After a long healing procedure, it was now time for the awakening. Annika's hands trembled with anxiety and excitement as she broke the watertight seal of the capsule. A cloud of cold dense vapor escaped through the glass door, and the fluid which filled the capsule flooded the square. Everyone held their breath as the figure of the man emerged through the mist. His voice broke the silence:

"What did I miss?"

IMPRESSUM

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DRUCK:
Vogt-Schild Druck AG, Derendingen

AUFLAGE:
Druckauflage 23 450 Exemplare, Mitgliederauflage 22 537 Exemplare (WEMF bestätigt 2022). Das Polykum erscheint 6-mal jährlich.

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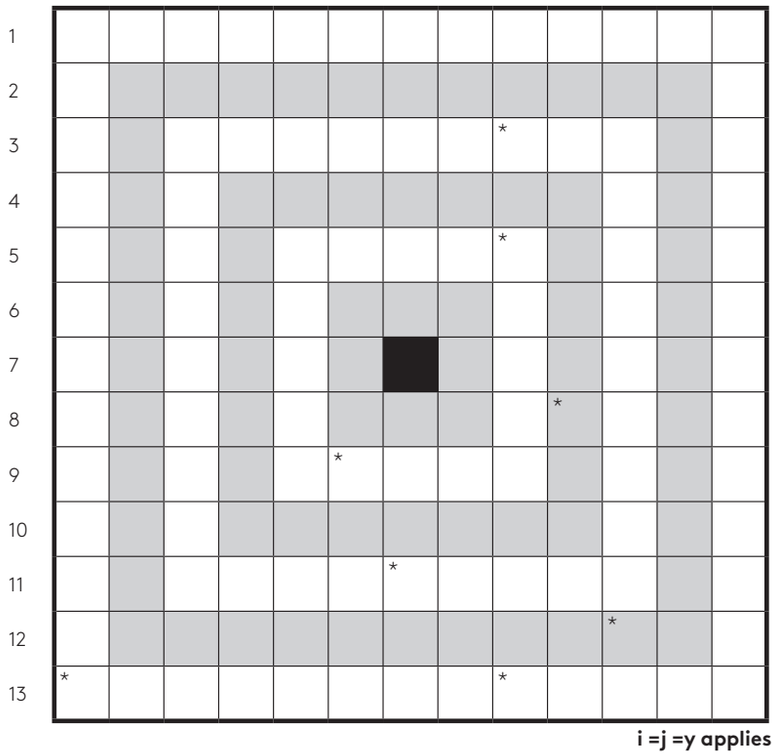

i =j =y applies

KRUXEREI

A New Case by "die drei Sonderzeichen"

by &, ∞ and # (Puzzle, Images, and Text)

Instructions

Enter the words defined under "across" into the corresponding rows, in the same order as defined. The puzzle further consists of 6 concentric frames which, when read clockwise, also form words. The words of the concentric frames are defined under "around" in the correct sequence, but without indication of the starting point. The letters of the fields marked with an asterisk (*), taken in reading order, will reveal the solution of the puzzle.

Solution:

(Fields with asterisk, in reading order)

1. - John, Paul, George and Ringo | the Fab Four: Bingo!
- Starch, protein, and fat | around sunset.

2. - For patties' perfect grilling | and coin-based deciding.
- Outcome of rusty pipe | prepare to wipe.
- Cyclist knows | these daily foes.

3. - In case you think it's fun | to inflate your bum.
- A number with which one can do | division by two.
- capacitor metal | resistant to stress, thermal.

4. - Here the star started to shine | with jersey number ninetynine.
- How you call | a treacherous pal.

5. - Buccaneer | with Crocodile fear.
- For a musical anthem | it accommodates a phantom.
- More then one non – | con.

6. - Societies | which build cities.

7. - The pitch of the piccolo | with a typo.
- It will look better | after putting the pieces together.

8. - Great with piston and valve | less so in finding a better half.
- Fatty acid with double bond | also worn by James Bond.

9. - All around | where things are bound.
- Nocturnal activity | of Brain and Pinky.
- Killed by his bro | a long time ago.

10. - City between two peaks | trip south for the end of weeks.
- E.g. freckles | and pimples.
- Within one may store | protocol, domain and more.

11. - Here enter | Theben's center.
- Yay for spider and troll | nay for fish and ball.
- To do where? | On the chair.
- This carbon can tell | the time a tree fell.

12. - Groundhog Day | Murray.
- Plant-based, black and hard | like injection moulded part.
- Result, lame | of a game.

13. - When weather wounds | the grounds.
- You surely had fun | if you had one.
- A cup of sleep | while the sun stands steep.

Around (Clockwise)

1.Frame (outermost)
- How bright | is the reflected light.
- Bears strong resentments | against boss or governments.
- The dog – on this command – | brings ball back to your hand.
- Reggae strums | vs. the drums.
- Not no more | but not more.
- Classification will be wrong | if you steep your oolong too long.
- Covid | before Covid.
- Sometimes you can't avoid | doing it with your pride.
- Better to have them on | for job interview in person.

2.Frame
- Make them red and slick | with the help of a stick.
- Swallow it day or night: | Relief in sight!
- Kids eyes glow | at this TV-Show.
- With eighty-two in the half-pipe? | Must be of the super type.
- jam or pickle lover | quickly removes its cover.
- A (short) big lizzard | fears meteorite blizzard.
- Where beer greets | candy and sweets.
- Way of common sense | to destroy evidence.
- It's nice to dine | with Spanish Wine.

3. Frame
- This is what citizen Welles | on his death bed tells.
- Works with passion, for fame | but the salary is lame.
- When a stronger enemy is in front | maybe this you won't.
- Unit of hairy drama | in the Technorama.
- Accomodation | for expensive vacation.
- When frustration goes boom | also important for bathroom.

4. Frame
- Ancient elephantlike thing | for micro-blogging-social-networking
- Club 27: Do you remember | its youngest member?
- Cool and tough he feels | on his two wheels.
- Because the pen was not secure | the hog escaped for sure.

5. Frame
- Missing her man, he went to war | Muse of Pedro Almodovar.
- Such person keeps reason | even during love season.

6. Frame (innermost)
- Not so long 'go: | Kinshasa-Kongo.
- His sons were jerks | they lost the ark.

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