Forum

Charles University Magazine
1 2021 — ukforum.cz/en

10th issue in English

When I race I feel like I am flying. All the moves are connected.

CU longboarders Valérie Kindlová and Max Odráška – Four wheels, one board / 36

Photo by Vladimír Šigut

Dear colleagues,
dear friends of Charles University,

We are at the end of a second academic year marked by the Covid-19 pandemic, a period when we were unable to meet in person for weeks or months, communicating only at a distance. Despite the limitations and inconveniences, the pandemic showed the strength of our academic community, our cohesion and willingness to make a difference. From med students who helped in hospitals all over the Czech Republic, to scientists who researched the coronavirus and oversaw the creation of modern test kits, to teachers and students who showed enormous commitment in the online environment. I wish to thank them and others who contributed to our living and vibrant university during this difficult period.

The pandemic showed that Charles University can stand up even in tough times. The new issue of the English version of Forum magazine once again shows how diverse and international our university truly is. We hosted the annual conference of the major Coimbra Group just a few days ago, in June. This year also marks 110 years since Albert Einstein taught at the former University of Prague. You can read about his time here and whether Prague steered him towards his epochal discoveries (and eventually the Nobel Prize) in our interview with Princeton historian Michael D. Gordin.

I am very glad that you are interested in reading the new Forum in print, PDF or in the electronic version. This issue examines the often overlooked but innovative topic of research of *terrain vague* in cities. It also presents portraits of CU's active students and top scientists who received Donatio Universitatis Carolinae research support. Inside, is a look at "typical" Czech cuisine and also a report about *downhill longboarding* – a sport practised by only a handful of skateboarders, some of whom are our alumni and students. We hope you enjoy all of the articles with the wish that the summer holidays will be pleasant, allowing you to recharge your batteries ahead of the new academic year 2021/2022.

Have a wonderful summer with family and friends.

Tomáš Zima
Rector of Charles University

You can read the articles online too!

Contents

Forum 1/2021, Issue No. 10
Charles University Magazine

Published by
Charles University
Ovocný trh 5, 116 36 Prague 1
Editor
Jan Velinger
Editor-in-chief
Martin Rychlík
Editorial Inquiries
+420 224 491 248
E-mail
forum@cuni.cz
Layout and Graphic Design
Filip Blažek, Eliška Kudrnovská, Designiq
Cover Photo
Martin Pinkas

Forum is published twice a year and is free. The opinions expressed in Forum are those of the contributors and not necessarily those of the Charles University. The reprinting of any articles or images from Forum without the express permission of Charles University is prohibited.

This issue was published in July 2021
Registration MK ČR E 22422
ISSN 1211-1732

Forum 10

Radan Haluzík:

The city inside out

In French, it's known as *terrain vague* – vague terrain, as in a wasteland or empty lot. But in reality it is any disused or largely inaccessible space, sometimes wild, sometimes industrial, where form and function stop. Mysterious, surprising, unknown. Social anthropologist Radan Haluzík and a group of fellow researchers and artists made vague terrain their subject of study for years. The result? The bestselling *Město naruby* (The City Inside Out), a fascinating monograph and multidisciplinary study published by Academia Press.

STORY BY Jan Velinger PHOTOS BY Michal Novotný, Petr Pokorný

Radan Haluzík, who edited the work and contributed several chapters, told me how it all began.
The project has deep roots going all the way back to the 1980s: a number of us, five or six, transferred to Charles University where we came in touch with Jiří Sádlo, who is a botanist, a poet and an important contributor and inspiration for the book who had connections to the school but didn't actually teach there! He spent a lot of time in the outdoors, tramping through the Czech countryside and sleeping under the stars. He invited us to join him, so we'd grab sleeping bags and travel to places he carefully chose. That was the most important experience for us at that time.

His focus was ecological and informal, and eventually he began taking us into *terrain vague* or "vague terrain" around the Czech Central Mountains or the mining city of Most and into post-industrial terrain that had largely been abandoned. At the same time, he also gave similar excursions around parts of Prague. He'd point in a random direction and we would set out in a straight line and just keep going. If you reached a fence, you climbed over it. If there was a walled area with a guard dog, you went around.

For us, the post-industrial landscape was extremely ugly; at the time, we wanted to be in nature, in the wilderness, to visit national parks (laughs) but we ended up going to these industrial areas instead. That was the origin of our fascination and for a number of us it became a kind of hobby. A lifelong hobby.

What happened next? How did it go from just a hobby to serious research?
About eight or 10 years ago, we began to sense that something was going on, that there were various processes underway under the radar in the Czech landscape. We organised a small workshop and conference at the Centre for Theoretical Studies. One of the panellists (and one of the contributors to the anthology) Cyril Říha, a philosopher focusing on architecture and urbanism, proposed that what was going on were changes in the vague terrain. We followed it up with a second conference and the project began to take shape.

For us, the post-industrial landscape was extremely ugly; at the time, we wanted to be in nature... but we ended up going to these industrial areas instead.

Soon after, we began getting together almost every month and more people, not employees of the centre, got involved. Colleagues, friends, spouses, scholars, scientists but also artists joined our group and what resulted was an 18-member collective of authors. We would go on excursions to diverse city areas together, we organised presentations and discussions and later we began writing. We then began sending each other articles for feedback and discussion and continued from there.

It sounds very "old school" in the most positive sense. The project seems to have taken on a life of its own.
It was definitely from the heart. There was no grant that would cover the work by all of us and more than half of the contributors did it for free. They liked showing up and taking part and they put in an enormous amount of work and did not get paid.

I am fascinated by some of the places and phenomena described in the book. When I moved to Prague I used to bike everywhere and came across really weird areas and at the time was at a loss to categorise what they were. Roads to nowhere; an abandoned factory; a fisherman's house on a hill, miles from any river, with pike heads mounted on the facade.
The initial draw for us was also fascination and things like this pike house you mention… Fascination is great as a gateway but later it becomes a problem, scientifically speaking. You don't want to end up in a swamp of exotisation. Fascination and romanticism are an important magnet to attract you to the topic but to get to next level we had to leave them behind.

Who were some of the scientists involved and what were their areas of expertise?
Those of us who were in the original group and had been interested in the typology of *terrain vague* had – in the meantime – each progressed in his or her respective fields: so, you have David Storch, who today is one of the world's top macroecologists, published in *Nature* and other top journals. Petr Pokorný and Adéla Pokorná are paleoecologists, studying the past of European cities who also began studying the past of vague terrain. There is an archeologist who is an expert on the Middle Ages, there is a philosopher of architecture, there is a social geographer, there are social anthropologists. I myself am a social anthropologist, one of my former students, whose focus is on life in Czech socialist panel housing blocks, is also involved. Some of us use the metaphor that vague terrain is *a shadow of cities*, its *reverse side*, and my wife, who is a Jungian psychologist who studied at Cambridge and Glasgow, took this metaphor seriously and made it the starting point for her own contribution.

Then, there is a group of artists who are also involved including the famous writer and poet Michal Ajvaz, who has been published around the world including the United States and Japan, conceptual artists like Epos 257 who creates numerous projects in vague terrain. There is a group whose members call themselves *křovináři* (thicketeers) who are often both artists and biologists who spend their time pushing through thickets and bushes. They call their activity *thicketeering*. They spend time there, test thickets, study what goes on and create diverse conceptual projects and makeshift galleries.

Then, there are those who are interested in the future of vague terrain: there is Štěpán Špoula, an urban planner and field architect from the Prague Institute of Planning and Development who writes about a new (more open and more wild) generation of parks in post-totalitarian Berlin, which could be a good example for our own post-communist Czech cities. There is an art historian. There is the aforementioned Jiří Sádlo, who surprisingly does not write about thickets and areas of underbrush, but how parks should be designed nowadays to meet modern day needs. That means a sophisticated mosaic of groomed spaces for play and rest, semi-wild places with some ecological and aesthetical management and some untended nature left to grow wild. Each of us has his or her own area of expertise and brings something unique to the table.

What is – and what isn't – vague terrain?
It's important to say that we didn't work only with the term vague terrain *(or terrain vague)* but also something we called *space within spaces*. The dominant definition of cities is that they are functional. The city, as such, serves different *functions*, and in between there are "gaps" we don't pay attention to very much. We see two ways vague terrain is formed: either municipalities or owners plant cheap lawns and plants around the area, the way they plant patches or small lawns around gas stations and highways and proudly call it *landscaping*. Or something spontaneous happens – an area is left unattended and weeds and bushes grow and it becomes vague terrain. Nevertheless, many lawns and cheap flower beds, if unattended, can also grow wild quickly and finally became vague terrain as well.

Those are gaps in a space, but even more interesting are gaps in time: land serves a function but it comes to an end. You can have, for example, a distillery in Prague Smíchov that closes down but it is not replaced overnight. Things take time. The land has to be sold, the old building torn down, a construction project paving the way for a new function should be prepared. Construction permits are needed, finances need to be raised, and in Central Europe this all takes at least seven or eight years and sometimes even longer. In the meantime, the ↪

place grows wild and we see a gap in time – vague terrain *in time*.

But these gaps in time can be far greater, lasting decades. I grew up on the periphery of the city of Zlín, where a sports centre had been planned and construction by the Baťa company began even before WWII. But it was never completed and it became kind of a spontaneous "wild nature area", a childhood kingdom of unintended artificial swamps, lakes and bushes. We spent tons of time there as kids, playing and exploring nature, catching snakes and frogs. And the point is, that the sports complex was only completed around 1988! So that was a major gap of more than 40 years. In both time and space.

Another example is the family of Václav M. Havel (the father of the dissident and first post-communist president) built a luxury restaurant and public pool as part of the Barrandov Terraces project in Prague in the 1930s. Before it was a pool it was a limestone quarry, then after a 20-year gap it was a pool and it is no longer a pool again. Now it is a wild place, like in the story of Sleeping Beauty and it waits for its new function. So there are many temporal as well as physical gaps in the life of the city. The city *pulses* in its gaps.

There are signs of it all around. My wife and I have a "favourite" in the negative sense: an exposed brick building in the town of Miličín on the way to Tábor. It's very frustrating to see. Never finished but standing there, exposed to the elements for years.

There is a much greater continuity, for example, in North America or Western Europe. Here, we have a much more marked discontinuity for political and historic reasons. Look at our recent Central European history and the second part of the 20th century! Jewish property was seized during the Second World War, then you had nationalisation after the war and after 1948,the seizure of Church property. And after that came the age of communist city planning with all those new towns built on the periphery of older ones. After 1989, you had post-communist era privatisation and restitution and the restructuring of the economy.

But because of 40 years of communism, we entered a new globalised economy late and a lot of things we were good at, from textile to car to steel production, had shifted elsewhere. So we have been through many, many changes and each change left a mark or even a gap in the city landscape. The result was empty areas, unused or used for something other than previously intended. Now that the wild 1990s of privatisation are behind us and the period of economic transformation is over, we began to have continuity again since around the year 2000.

Now, some of these forgotten areas are starting to be developed. Over the eight years since we started work on the book, a lot of vague terrain disappeared – for good or bad – and in cities we saw the rise of massive development projects. Cities are becoming more whole with gaps disappearing. That's good but the bad is that these spots sometimes just become denser but without any thought for quality. In our book, we think these empty places are a chance to change the city for the purposes of the 21st century. To connect our scattered metropolises, to develop new local city centres and to connect old ones in our decentralised city outskirts, to build new parks, green pathways and green infrastructure. But the spaces will be filled either with offices or apartment blocks. The flora that was there will be wiped out. That's the kind of period we are living in. We are wasting our historical chance to do something new. To renew the city.

Meanwhile, a lot of people who live in Czech towns and cities have gotten used to these *spaces within spaces* near their apartment houses or suburbs and are used to them and refer to them as "nearby woods" or "local nature", and go for walks or exercise there. They bring a small keg of beer, sit around campfires making sausages, sometimes go on dates there or experience intimate moments, and the place serves multiple functions. And many don't realise that this is vague terrain and they think that it's a "public park" or just "nature" and one day the bulldozers show up. Anthropologist Martin Veselý in his chapter shows how local people can mobilise and raise their voices when their local favourite *terrain vague* is endangered.

You taught at New York University in Prague and at FAMU international – how is vague terrain different, for example, in North America where some of your students were from?

One difference is that such areas in the Anglo-Saxon world are, by law, very often fenced off. There can be holes in the fences but it is fenced off. Here, the line is more blurred because often there is no fence and no delineation. Is it nature? Is it a brownfield? Is it an abandoned park? Is it something else? You don't know…

The other thing, I would say, is that here we are within the cushion of European welfare states. Even if we have a lot of homeless people on the street, social tensions don't run as high. In Prague, there is practically no place a young woman couldn't go at night. By contrast, in the 1990s, I lived for one year in Palo Alto in the US near Stanford University, a very expensive area of Silicon Vally, and when you crossed a little stream into East Palo Alto you entered an extremely dangerous area, where urban gangs operated in those times. Statistically, there was a murder each week.

When I asked some of my students if they had ever known anyone in any kind of youth gangs in the US, they burst out laughing. One of them, a student named Mike who was from Los Angeles, told me "That's crazy, professor. Members of gangs don't attend university!" and everyone laughed. Another student, Stephanie, who was from Brooklyn, described dangerous parts of the city she remembered from when she was a child. She said there was a part of town where "real gangs" operated and rape was common and no one in their right mind would go at night. This is another aspect of *terrain vague* in Central Europe: safety, social control. In Prague, you have places that, on the face of it, appear totally abandoned but the city still picks up garbage at wastebaskets there! And sometimes they leave the weeds but take the rubbish. So that is very different from the US, where, if an area has been neglected and there are weeds and garbage, it's a good idea to stay away. Our country is very different in this respect. To conclude: the places we study are also shaped by safety and social control.

A lot of people in the Czech Republic have gotten used to these spaces within spaces near their homes or towns, referring to them as local nature or nearby woods.

Do you have a favourite vague terrain?

I live in a part of Prague, which is right next to the historic centre, but where you have both a large river and high cliffs. The slopes of the cliffs are covered by bushes like somewhere in the Mediterranean and near the river are the last tiny bits of vague terrain shoreline like somewhere on the Amazon. A place where there is neither a path nor the river and for a long time a part of it wasn't even on the map. It's one of my favourite places and I go there once or twice a day when I am working from home. It's only around 10 metres wide and several hundred metres long – a strip of trees and bushes alongside the river. The city started a drastic project of "revitalisation" by turning the area into an austere stone and concrete embankment. We got involved late, almost too late in communicating with the city, to ensure that at least the shoreline of this area would be kept as kind of a semi-wild park. And that could serve as an example of how to save other vague places.

There are NGO or even student projects to revitalise parts of vague terrain, for example, to use the area for pasture for domesticated farm animals. There are projects turning former industrial areas into wild parks. ↪

Yes, in western European countries, such projects have been common for decades. I lived five years in London and saw disused railways or former industrial ponds transformed into kinds of vague parks. Nevertheless, by comparison, we have a lot more vague terrain here in Central Europe. And our wild places continue throughout the city: from its periphery almost into the centre. So these models are a good and challenging example, but not sufficient in their scale. A very good example for us is Berlin. Like cities in the Czech Republic, it inherited vague terrain. But Berliners dealt with such areas with democratic open-mindedness and encouraged a dialogue between all stakeholders. The city turned the enormous scar left by the Berlin Wall, that had divided people, into a kind of green centreline that became a new city axis and brought people together.

You mentioned that vague terrain areas in Prague or parts of the Czech Republic are generally not dangerous. Nevertheless, some of these areas hold up a mirror when it comes to societal problems, the most obvious being homelessness. My son often visits a skatepark at a popular Prague island, but in the underpart of the bridge he rides or walks over, there are sometimes quite surprising cardboard settlements. How do you look at that situation as a social anthropologist?

We are certainly not trying to idealise *terrain vague*, not by any measure. In the book, we deal with some areas as a kind of *refugium* for plants, animals and also people who have no room anywhere else. They are dodgy or sketchy refuges at best. Such spaces seem to offer hope of building a home there, but unfortunately, it is just a false hope, because anybody can come and destroy it. "Cardboard cities" can be dangerous and also precarious. The real owner can come and claim the space back at any time. What is interesting is the section in book by archaeologist Petr Meduna, that tells us that since at least the Middle Ages you had people who inhabited vague terrain. What is important to realise is that there was always a connection between marginalised people and marginalised parts of town.

Urban planning seems like an enormous undertaking and while so many solutions are needed, many unforeseen or unanticipated problems always arise.

Exactly. You want a city that is rational, with hygienically perfect norms, where everyone has enough sun and light, egalitarian access… But the result of such masterplans looking 10 years ahead, is that there is always something unexpected. We built, for example, grandiose projects of socialist blocks of flats for a generation of "new men" but got a city where youth become "urban savages" (laughs) who wanted to play in vague terrain, instead of carefully projected playgrounds and school stadiums. You got something no one foresaw. And that is how it always is.

You can try and pursue an urbanist dream but what you build always ends up functioning a little differently than you expected. We see a huge problem in urban planning and we think the field focuses too much on practice and not enough on theory. The field speaks very little about unspoken assumptions. It ignores the fact that every so-called urban masterplan has unintended consequences. The creation of vague terrain is just one of them.

We wanted to emphasise this in our book. We coined a term, in the beginning partly as provocation, but which I think needs to be taken seriously: *inverse urbanism*. Urbanism, where the empty spaces are as important as places with official functions, where the periphery is as important as the city centre. Urbanism, where the city hierarchy is seen from upside down. Or inside out. We need to look into the city from the point of view of the periphery, not just from the point of view of its centre. We need to know what surrounds functional places within our cities and why. Negative, seemingly empty, unused space is also space. And it lives its own (usually unseen) life. We need to be architects of emptiness. We have to consider the unintended consequences of our city projects.

Město naruby
Vágní terén, vnitřní periferie a místa mezi místy
Radan Haluzík (ed.) and coll.
400 pages
Published in 2020 by Academia Press

I would still like to come back to some of the characteristics of vague terrain as "experience" because you also organise excursions. What are they like?

If you are walking through a city, you can always anticipate more or less what will be around the next corner. What kinds of streets, or even shops or tram stops you will see in a minute. Cities are regular and predictable. That's not the case with *terrain vague*. In vague terrain there is a complete inability to foresee what comes next. And that can be refreshing. That's what the artists on our team value so highly. It can be almost hallucinogenic or unreal. You come back from the field and feel changed somehow and it takes half a day for things to settle and return to normal. The same is true temporally: if you return to a patch of vague terrain after a month, the same area you saw recently may be different again. Vague terrain can be a place of very dynamic changes.

I took students from NYU onto one of the riverbanks in Prague and was talking about the unexpected and some of the boys complained "All we see are just bushes and piles of shit." But then we climbed old steps in the middle of the bushes, which still had an original Art Nouveau railing! The steps were covered in brambles but we followed them up and suddenly out of nowhere – we caught sight of a modern office tower with a Ferrari parked in front! In vague terrain you never know what will be around the next corner: you can come across a fence, or an old aquarium with a plush giraffe toy inside, a campfire or a cardboard city with a portrait of Václav Havel! You just never know.

Another thing that we discovered was that it was almost impossibe for us, even as researchers, to label or name such areas properly: it was always something like "the place beyond the tracks", "the large bushes between the gas station and old brewery" – something between something. Spaces within spaces. Vague terrain remains hard to grasp and evades easy definition or categorisation. But there is also something refreshing about that.

Radan Haluzík, Ph.D., is a social anthropologist concerned with the relationship of politics and aesthetics, the social life of things and pressing global issues. He studied biology, ecology and social sciences in Prague, and at Stanford University and University College London. Many years of field research into ethnic conflicts in the former Yugoslavia, as well as the Caucasus, resulted in the book ***Why Men Go to War***. His next long-term project, ***Big Houses – Big Dreams***, is about people from the world's poorest countries who became rich and put their money into dream homes. Dr. Haluzík works at the Centre for Theoretical Studies jointly run by Charles University and the Czech Academy of Sciences. He is the editor of, and contributor to, ***Město naruby*** (The City Inside Out) – about vague terrain, inner peripheries and in-between spaces.

An exobiologist seeking **signs** of life

Professor Jan Jehlička is a pioneer of the new 21st century discipline of exobiology. Together with colleagues, and using advanced devices such as Raman spectrometers, he searches for answers to questions such as: Does life exist beyond planet Earth? Did it exist in the past? Last year he won Charles University's Donatio award.

STORY BY Marcela Uhlíková PHOTOS BY Michal Novotný, NASA

Professor, what makes tracking carbon so fascinating? Why are you interested in it?
Carbon occurs in various states in the geosphere. Coal and oil are the most important organic substances to have contributed to human development. Pure, elemental carbon rarely occurs in rock as crystalline graphite or diamond. More often organic compounds tend to be dispersed in rock. They're amorphous. And it is the scattered not entirely crystalline black carbonaceous compounds in rock that can be fascinating. It is relatively difficult to find out about them and, especially in the past, there were no suitable methods to study them… It's definitely interesting to trace the precursors of organic matter in rocks and the conversion to graphite during their metamorphosis.

What got you into studying rocks?
After graduating from the Faculty of Science and defending my thesis with Associate Professor Bohdan Kříbek, a pioneer in the field of organic geochemistry in Czechoslovakia, I joined the Central Institute of Geology *[Editor's note: Today known as the Czech Geological Service]*. In France, in Orléans, I continued at the university and the CNRS. There I continued to study carbonaceous compounds in the rocks of the West Bohemian region, and in the 1990s started to learn modern analytic techniques of transmission electron microscopy (TEM) and Raman spectrometry.

The Perseverance rover, equipped with two Raman spectrometers and other equipment, landed on the Red Planet on February 18, 2021.

So, you could make use of the two methods at the same time!
Yes. One method is difficult but excellent for understanding the structural and microtextural aspects of things like carbonaceous matter. But that matter must be isolated and dissolved from the matrix of the dominant rock, where the carbon content is very low. Everything is so clear but so black!

And the second, more modern approach came in Orléans?
This was the innovative Raman microspectrometry method, but the instrument still took up the entire laboratory: the laser was large and had to be cooled with water; it took hours to get a good spectrum. At the time, these devices were practically unheard of in the Czech Republic, and the method had hardly been adopted: it wasn't very widespread, although there were groups of scientists who were capable of assembling a device.

Raman microspectrometry – that must be a gold mine for a 'geoscientist', isn't it?
Definitely. It enables us to gain spectroscopic structural information from tiny micrometric volumes. Even inside translucent or transparent minerals. Or even from atmospheric particles, if we're interested in their phase composition. What's more, it's non-destructive; in short, it can measure any sample, and those are often untreated, and then you can decide to use other methods and analyses. You can study minerals, biomarkers, microscopic particles, cells, tissues… Since 2010, they've started to develop miniaturised and portable Raman spectrometers.

They're widely used in field conditions: in the field of criminology and for the study of geoscience, geobiology, and astrobiological problems.

Professor Jan Jehlička graduated from Charles University's Faculty of Science, where he currently works at the Institute of Geochemistry, Mineralogy and Mineral Resources. He leads the *Exobiology Group*. He completed his doctoral studies at CNRS in France. He is the co-author of dozens of academic publications. Last year he won the Zdeněk Johan Prize for his article in the journal *Frontiers in Microbiology* and won the *Donatio Universitatis Carolinae* award.

But also for researching artifacts.
Exactly. For artifacts that are considered cultural heritage – one of the areas that are being studied more and more today – the method can be used without sampling and is completely non-destructive. Raman spectrometers make it easy to verify the authenticity of gemstones set into historic jewelry and to determine the location of origin for rubies and emeralds. Gallerists, curators, collectors, and restorers are interested in the pigments used in paintings and their repainting. Their authenticity can be proven and the use of more modern colours can be revealed. Similarly, portable instruments can be used to study things like the condition of paintings, frescoes, building stone, polychromy on stone, wooden sculptures and the alteration of metal sculptures right where they stand, without sampling for analysis in a laboratory.

But as an exobiologist, you are most fascinated by the possible existence of life beyond Earth…
This trend in modern science has many aspects, areas and sub-questions. It focuses on various objects in space, including planets and satellites in our solar system, as well as objects and planets that are much smaller and more distant. It also deals with the definition of life itself, more general questions of maintaining it over time, and also with the issue of identifying any manifestations of life processes. Exobiology puts forward projects that could, for example, prove the presence of organisms in extreme conditions common elsewhere in the universe as well as detecting the chemical traces of biological processes from the distant past.

Which projects are the easiest to imagine?
The ones at an advanced stage are the NASA projects focused on Mars or the European Space Agency's *Exomars* project. Their essential elements include rovers "stuffed" with cameras and analytical instruments. The Americans' Perseverance, which is already roaming Mars, is equipped for the first time with two Raman spectrometers, in addition to a number of tools and instruments. One is focused on the detailed analysis of samples, while the second allows the acquisition of Raman spectra on rock outcroppings at a distance of more than ten metres.

And the ESA rover, named *Rosalind Franklin*, will operate on Mars from about 2023. It also includes a spectrometer, which will enable the analysis of samples obtained by a robotic drill from a depth of up to two metres. The goal of these advanced analytical tools is to detect mineral and organic traces in the rock environment. Knowledge of their composition will help to understand the historical environment on Mars. It will make it possible to assess water distribution and its development. The detection of organic traces – biomarkers – could indicate whether biological processes may have developed in the past, possibly used by very simple microorganisms… And it's the identification of biomarkers in endoliths, in stones where extremophiles have developed sometime recently in more or less the surface conditions on Earth, that is the topic of our current research.

Exobiology advances projects that could prove the presence of organisms in extreme conditions common elsewhere in the universe.

Sorry to ask, but don't you have to be a bit of a romantic and a dreamer?
Everyone who researches has to have imagination, has to be curious and has to be an enthusiast. And yes, maybe a dreamer too. I don't know to what extent. Perhaps this should apply more in the case of searching for traces of life on Mars or in inhospitable conditions, like the frozen lagoons of Antarctica or the alkaline lakes of Australia. Researching there or measuring using sophisticated devices or miniature prototypes of Raman spectrometers that will grope around on the surface of Mars – that's exciting. The results we obtain are directly related to projects aimed at better understanding the composition of rock outcroppings both on Mars and on Earth.

We made **incredible** progress

“When I started, the chances of curing the most common types of paediatric leukaemia were around 20 percent – today the number has gone up to 90 percent. Not every doctor gets to live to see that,” says Professor Jan Starý, a paediatric haematologist who has spent his entire career with Charles University’s Second Faculty of Medicine and Motol University Hospital. Last year, Starý received research support from the university’s *Donatio Universitas Carolinae* programme.

STORY BY Pavla Hubálková PHOTO BY Martin Pinkas

Professor, you’re retiring this year as the head of the Department of Paediatric Haematology and Oncology at Motol University Hospital. Won’t you miss it after all these years?
I’m stepping down as the department head due to my age, but I’m continuing otherwise. I’m looking forward to having fewer administrative responsibilities, so I’ll have more time to spend on different things. I’ll still participate in visits and discussions about patients. I’m leading a number of clinical studies and above all, I will still be teaching students.

You’ve been working in medicine for 45 years. What has changed in that time?
I’m part of a fortunate generation of doctors who have experienced unbelievable progress in their fields, progress that they could not have imagined. When I started, almost all children with leukaemia died. Today almost all survive. That’s not something every doctor gets to see.

In interviews you mention that the early 1990s were crucial for the entire field. How?
It was crucial because we could start to work together with foreign countries – to go for internships and conferences, and participate in international studies. Excellent conditions for progress were created at Charles University and in Czech health care after 1990. And so I gradually got into international structures. It was a happy time: there was a lot of interest and many doors opened.

In addition to participating in international organisations, you have actively taken part in the development of paediatric haematology in the Czech Republic. For 30 years now, you have been the chairman of the working group for paediatric haematology of the Czech Haematological Society and the coordinator of a number of studies…
I am one of the students of Professor Otto Hrodek, the founder of modern paediatric haematology in the Czech Republic, who was a great inspiration. For me, the patient always comes first, and not just the ones in our department. It wasn’t always customary for workplaces to cooperate. Our first thought was to change this. So with Professor Hrodek we initiated the establishment of a working group across the Czech Republic and have been working together closely for many years. And we also cooperate with organisations abroad in the framework of international clinical studies.

You’ve achieved some excellent results. In 2002, you became the coordinator of an international protocol for the treatment of acute paediatric lymphoblastic leukaemia, which has brought tremendous benefits to children around the world. What made that study unique?
It was a major international study involving 13 countries worldwide from Europe, South America and Asia. It included more than 5,000 patients and it truly meant a significant improvement in treatment outcomes for all the countries involved. Children were classified into risk groups with differing intensities of treatment. At a certain phase of the protocols we compared two treatment variants by random selection. We had a common database and standardised diagnostic and treatment procedures.

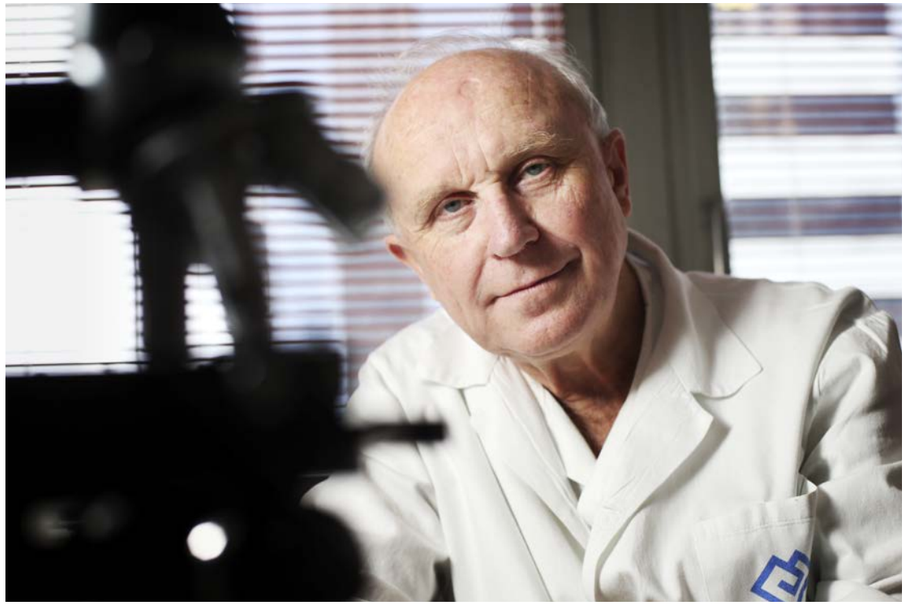
How have treatments changed? Are they gentler? How many children suffer consequences?
The most common incidence of leukaemia is in children from ages two to five. These patients also have the best treatment results and live completely normal lives after recovery. This is unfortunately not the case for all diagnoses, and the consequences were more severe for a number of patients treated in the past than for patients with the same diagnosis today. This is due to the progress we’ve made in implementing gentler treatment approaches. At the same time, the approach to the patient has changed markedly. It’s now more comprehensive and multidisciplinary. For example, an integral part of our work today involves psychosocial care and supportive palliative care.

You often mention that the progress in paediatric hematooncology is due to financial donors as well as science…
Definitely. Cutting-edge medicine cannot be done without multi-source financing. And donors are one of the important sources; without them we certainly wouldn’t be as good as we are. We use this money to support research and certain highly specialised examinations that are not yet reimbursed by insurance companies. And the foundations provide us with resources and funding for salaries for the necessary administration.

You have a lot of experience. What would your advice be to young doctors?
Doing cutting-edge academic medicine means devoting a significant part of your life to it, not just during work hours. For top-level medicine you have to keep up with science worldwide, to be partnered with highly erudite foreign colleagues, to come up with ideas, write articles and give lectures. You have to sacrifice a lot of time and effort. It won’t work any other way, and you won’t be able to get it done in an eight-hour working day.

At the same time, you emphasise a necessary separation of work and free time. How can a person set these and not burn out?
Everybody does it differently. For me, apart from my family, it’s nature and travel. I put on my backpack and walk through the Czech countryside. In the last year I’ve walked through Krušné hory (Ore Mountains) because you couldn’t go anywhere else [because of the pandemic]. When I’m on vacation, I always try to go “beyond weekdays.” And maybe when travelling to conferences, I try to combine it with a vacation, to stay a couple of days longer and get to know the place.

Professor Jan Starý is the head of the Department of Paediatric Haematology and Oncology at the Second Faculty of Medicine and Motol University Hospital. He is an internationally-recognised paediatric haematologist who has significantly contributed to the development of the entire field in the Czech Republic and abroad. Thanks to his knowledge and efforts, the Czech Republic is a full member of one of the most important global groups working on paediatric leukaemia treatments.



Refining ideas in the **Innovation** Laboratory

“It’s not so much about gaining knowledge. For me it’s mainly about participants outperforming themselves. It’s an experiential course in which students are pushed beyond their comfort zones,” says Jan Veselý. He’s guiding a cohort of creative students – his sixth round already – and “toughening them up.”

STORY BY Martin Rychlík PHOTO BY Michal Novotný

It’s late at night on a Tuesday in May. Jan Veselý welcomes dozens of visitors to his Zoom online space. Ten, twenty, thirty, forty… The participants who come to present their projects to the team are diverse: students from various Charles University faculties, other schools and guests too. Everyone is interested in how ideas have developed in the sixth cycle of the Innovation Laboratory, which is in its third year of operation out of Kampus Hybernská. Now, unfortunately, it’s only happening remotely over the Internet.

A group of young lawyers starts off. They’ve come up with an idea to create a useful “website with a stripe” to advise people who get a letter from a Czech government entity [which are always delivered in an envelope with a stripe]. They are followed by *Medici PRO Očkování (Medics FOR Vaccination)*, a joint initiative of students from medical faculties and the CU Faculty of Social Sciences which sheds light on the prevailing myths around vaccination – and not only coronavirus. Just like the others, the students from the *Kebule (Noggin)* project for people suffering from Alzheimer’s and the educational *SenEDU* project eventually present their visions and plans, their implementation and answer incoming questions. “What’s the innovation here?” “How will it work?” and “Is it sustainable?”

When a *fail* is OK too

There’s a big difference in the quality of the projects presented; today, the law and medical students stand out. How will Veselý, as the lecturer, evaluate them? “I don’t evaluate the projects. I’m interested in the people behind them. They’ll go through a series of very unpleasant experiences which will certainly include things like negative feedback from users on their prototypes or having someone with experience rip their ideas to shreds. At our meetings, we’re there for them. We discuss things together and are constantly prodding them to their next steps… They get used to the fact that a *fail*, a setback, is a common part of the job. Gradually they gain a healthy amount of self-confidence and they’re not brought down just like that,” explains Veselý with enthusiasm. He has experience supporting “social innovators” in places like the Vodafone Czech Republic Foundation Laboratory and the Social Impact Award.

The creation of the “Lab” at Hybernská was mainly supported by the Faculty of Arts in the beginning, but since January the programme has come under Charles University’s Centre for Knowledge and Technology Transfer (CPPT). And where did Veselý get the inspiration for it? His role models were originally Ash Maurya and Eric Ries and their famous books *Running Lean* and *The Lean Startup*. And in a university environment, he became interested in the *Stanford2025.com* project, which discussed what a modern campus could and should look like.

They get used to the fact that a *fail*, a setback, is a common part of the job. Gradually they gain a healthy amount of self-confidence and they’re not brought down just like that.

Jan Veselý has led the Innovation Laboratory at Kampus Hybernská since 2018 is a learning designer at Slevomat. He graduated in international relations from Metropolitan University in 2012, and has long been involved in social innovation. He worked at the Vodafone Czech Republic Foundation Laboratory, as well as for IBM Smarter University (2015 to 2018) and founded the EduFórum platform. His interest is in building an ecosystem of lifelong learning.

How the Innovation Lab was born

The Innovation Lab tied into a previous collaboration Veselý led, a project called Smarter University at IBM. He was sitting in Hlína café with Jan Bičovský, the former vice-dean of the Faculty of Arts, when the question came up: “What if we tried to attract your philosophers, sociologists and lawyers into our programme instead of technicians?” And confidence grew with their first successes, as did a desire to think up bigger things. And the idea of a purely practical class focused on innovation was born.

A headquarters for it was found at Hybernská. “I’ll say it openly. Charles University is a proud, centuries-old institution, but one where people are afraid to enter without a suit and tie and approach someone in fear that they’ll get their title wrong. And aside from that you have Kampus Hybernaská over here: normal, informal, pleasant… it’s actually pretty ‘weird’ and full of somewhat ‘strange’ people. So we thought I’d fit in perfectly,” Veselý says, laughing.

In 2018, the Innovation Lab, was born. It’s a kind of pre-incubator programme where students try to practically transform their ideas into reality; theory isn’t pounded into their heads. The first course had around 12 candidates. In the current sixth round there are around 50.

The transition to online teaching was also a challenge for Veselý, despite working for more than 20 years primarily in the digital world of e-commerce. But he’s had help from Ondřej Mrkus for the last two semesters in leading the seminars. Together they come up with workshop scenarios, facilitate groups and use breakout rooms in Zoom… Veselý gradually transformed his home office into an amateur TV studio: there you’ll find a green screen, microphones, lights and even a treadmill.

The miracle of interdisciplinarity

The Innovation Lab has already produced successful prototypes. Veselý recalls the fourth cycle, where in the *Nakopni Prahu (Get Prague Going)* competition, projects finished in second and third place (IT education for secondary schoolers, and a book e-reader for seniors). The teams included students from the law, social sciences and mathematics and physics faculties. “I really had a second Nagano then (the first was when the Czechs won the gold in ice hockey). I screamed and jumped for joy,” the lecturer fondly recalls to this day, when he highlights interdisciplinary activities: “Interdisciplinarity is key! Different students learn to communicate outside their bubbles. They have to translate the language of their ‘tribes.’”

And what’s next? The seven-member Innovation Lab team plans to launch courses in English based on student interests. Veselý himself of course has a longer-term intention: “I’m interested in cooperation in the academic environment, but primarily I have a vision of building a high-quality practical education at the university level. To use the results of research and ideas and then to capitalise on those directly in practice.”

www.inovacnilaborator.cz

A step into the **unknown**

"We both have degrees in international relations and we like to talk about what's going on in the world, so we decided to record our conversations. Let's see what's next door," is how Barbora Chaloupková and Hana Martínková explain their podcast *Za Humny (Not far from home)* which examines international relations, politics and public affairs and is now finishing its second year.

STORY BY Pavla Hubálková PHOTO BY Vladimír Šigut

How would you describe each other?

Hana (in black)**:** Bára is a journalist at the weekly *Respekt* and a doctoral student at Charles University. We met over Instagram, became friends through the podcast and, not long ago, moved into an apartment together. We complement each other on the podcast; I am more practically oriented and Bára is focused more on academic things. That's also her strongest suit – she knows how to think deeply about things and make connections between them.

Bára (in red)**:** Hanka is the most Renaissance person I know: her interests range from nuclear physics and nuclear weapons to international politics. As a result, she's the driving force behind the podcast because she handles things that are not in my domain at all – technical things, numbers. Professionally, she has two university degrees, speaks three languages, was a researcher at the online news site DVTV and now does security and international political analysis for MPs of the Czech Pirate Party.

How long did you know each other on social media before you first met in person?

Bára: A long time. Hanka had a blog that I read in my first year of university… *("It's not up any more and you can't search for it," Hana quickly jumps in to say)*. And I also followed her on Instagram.

Hana: I also remember Bára from Instagram because she had an interesting profile image – a picture of her feet with a basket of apples. We first met thanks to Andrea Procházková [a journalist for the weekly Respekt] who set up a meeting over wine to introduce us in person. But the meeting of the three of us didn't happen, because Andrea was writing about the crisis in the Czech Social Democratic Party, so it was just the two of us, a little bit like a 'blind date'… Then Bára went to the US for a year, and after she got back, at our second meeting, we decided we wanted to have a podcast together.

So you each came up with the idea of doing a podcast together? Independent of each other?

Hana: Yes, it really happened! We met over coffee again and said: "I want to tell you something… And I want to tell you something too." We took that as a sign, and maybe that's why we really got into it.

Why do the podcast as a duo?

Bára: I think we both love podcasts – we listen to a lot of them. And we enjoy the dialogue format, the conversation together, in which you can get much deeper into an issue, complementing each other.

Take us behind the scenes. How is an episode of *Za Humny* made?

Hana: First we choose a topic that interests us, it can be something that is going on in the world at the moment or just one that we like or find interesting. Then there's a phase of "getting a feel for it" where we independently think about the content we can use to grasp the topic.

Bára: And then we talk for a long time about it on several occasions. We think up a structure and a script, which we intersperse with our self-study and research. Then we go through it one more time, record it and Hanka edits it.

Hana: And then Bára listens to the result. I've never actually listened to an entire finished episode (laughs).

How long does it take to create one episode?

Bára: If I were to add it up, it'd be at least three to four full working days.

And what does the preparation before recording look like – do you just have talking points or a detailed script?

Hana: We have a *de facto* word-for-word script, because otherwise we'd get tangled up. It's important to have the structure thought out in advance, as we often combine multiple sources.

Bára: The pursuit of spontaneity would come at the expense of the content. Even now it's often a 40-minute "lecture" and an attempt at casual conversation would stretch that out even further.

What's your favourite episode? And which one has been the most successful?

Bára: I have an emotional connection to the episode we did in the spring on the economic consequences of the coronavirus crisis. That was such a watershed episode. It was when we first told ourselves that we're going to get into a really huge topic, and at the same time it'll have a bit of our own interpretation. There were several milestones in that episode too – we decided to go to 40 minutes long for the first time, and we took on some important books that we discussed together and interpreted. We were very happy about it. If only because we dared to do it. I think that is when we realised there aren't any podcasts like ours on the Czech scene.

Hana: I agree. So that I don't repeat what Bára said, I liked the recent episode on surveillance capitalism, a current topic we explained in the context of the book *The Age of Surveillance Capitalism* (2018) by the Harvard professor Shoshana Zuboff. The most listened-to episode is the one on conspiracy theories.

What does the podcast bring you?

Hana: A lot! It's enough that we enjoy it and that it fulfils us. But at the same time, we're living proof that when a person dares to take a step into the unknown, when they involve creativity and a bit of themselves, they can grow incredibly from it. They don't support that kind of personal involvement very much in Czech schools and universities – and that's unfortunate. Thanks to the podcast, we have our own project, which we can somehow use to identify ourselves with and present our work and interests, which opens up other possibilities and opportunities.

Bára: Yes, it's a source of self-confidence. And an excellent opportunity for growth – it's taught us to be demanding of ourselves and at the same time to not be, to search for the balance between constantly improving but also accepting that whatever one is working on won't be perfect.

Barbora Chaloupková studied at the Department of North American Studies at the Faculty of Social Sciences at Charles University and is currently pursuing doctoral studies. She has international experience from the University of Heidelberg and the University of Richmond.

Hana Martínková studied Political Science and International Relations at the Faculty of Social Sciences. In her second year at CU, she added the study of economics at Prague University of Economics and Business. Under the Erasmus programme, she studied for one year at Brunel University London. She also went on a student exchange to Brussels.

Why I dance, **meditate** and have a dog

Lucie Bankovská Motlová teaches at the Dept. of Psychiatry and Medical Psychology at the Third Faculty of Medicine at Charles University. She is outspoken about her field, how it can help patients live regular lives and debunks common myths. Above all, she talks about how important it is to eliminate prejudice and stigma when it comes to mental illness. Plus, she offers valuable advice on how to maintain good mental as well as physical health during the pandemic.

STORY BY Pavla Hubálková PHOTOS BY Vladimír Šigut

Together with colleagues, you recently published an article about med students' level of interest in psychiatry: what was the motivation?
We got the idea while conducting separate research on med student attitudes or stigmas. The survey suggested that only around one percent of students were interested in becoming psychiatrists. Abroad, the number is higher, around 4 percent. That made an impression and compelled us to try to learn more.

The second impulse was the existence of a questionnaire by Czech-born US-based psychiatrist Richard Balon, who researched medical student views on psychiatry. It was available only in English, Spanish and a number of other languages before now and we thought it was a shame that it hadn't been translated into Czech. We contacted him and requested his permission to translate the survey so we could introduce it here.

You sent the questionnaire to eight medical faculties in the Czech Republic – what did you learn?
The questionnaire was received by all students in years 1 through 6 and in 2019, representing more than 10,000 med students. We received replies from roughly 24 percent. The first question asked about their chosen field or all areas of medicine they were considering for their future. Almost 30 percent checked psychiatry and 15 percent child psychiatry, which was a welcome result.

But when we looked at the number of students who had already finalised their choice, we learned it was 1.6 percent of all med students and no one had checked child psychiatry at all. We also learned that students' interest in psychiatry dropped after their freshman year. One quarter of students interested in psychiatry were warned off by people close to them, and almost 70 percent of med students thought that psychiatry is less prestigious than other medical fields. That sentiment, however, is the same around the world.

Mental health has been a big issue in recent years and there are reforms underway in the health care system. It seems that more psychiatrists will be needed, yet many in the field now are starting to retire and the next generation is not following in the earlier generation's footsteps. That is alarming.

Why is there so little interest in paediatric psychiatry? Paediatry is otherwise very popular.
One reason is that child psychiatry is not taught properly. In total, some 100 hours are devoted to psychiatry and in that time students have to gain a full understanding of proper diagnosis – from mild depression to addiction to severe psychosis. Of that, two to four hours remain for child psychiatry. Some faculties have a bit more but it still isn't enough. The answer is not to offer more hours – med students are already snowed under with the number of things they have to learn – but to offer more electable courses specialising in child psychiatry, where students could gain more knowledge.

The other reason is that paediatric psychiatry is very complex, requiring you to not just work with the patient but with their family, their school and others. That scares students away. The characteristics of child psychiatry are also different: there is a lot of observation of how children play, how they interact with their parents. You have to have an excellent understanding of developmental psychology, which also is not taught much at the medical faculties. As they grow up, you also have to stay on the same wavelength with the patient, to maintain their trust and that is something not all adults are good at.

How do you explain the drop in interest during med students' studies?
In their first year, many students consider psychiatry to be something that is immensely interesting and many are attracted by the psychological aspects; the problem is when reality sets in and they visit locked psychiatric wards where patients – more serious cases – are treated. Even though the majority of psychiatric treatment takes place in emergency wards or day centres, med students are introduced to "major" psychiatry and that dissuades them. A number of them explained that they don't know how to communicate with patients and that they are afraid. That shows that we have to pay more attention to teaching how to communicate with patients, and that we currently pay too little attention to students' emotions. This is something that could be managed successfully with the right approach.

The lower interest in our field may also be the fact that other departments do more to attract students, they run campaigns and present their fields in a better light. That's something we don't do and I guess it's a mistake.

If I was a newly enrolled med student, how would you get me to sign on?
I'd try to show you psychiatry across the scale: from locked wards where patients receive acute care to the moment patients are ready to return to ordinary life. I would show you emergency care, which is where most patients are treated, and I ↪

It's important to emphasise that psychiatrists share the life-story of their patient and that is something other fields don't have time for. The relationship with the patient is therapeutic.

would try to give you a sense of the complete experience. It's important to emphasise that psychiatrists share the life-story of their patient and that is something other fields don't have time for. The relationship with the patient is therapeutic. We can help with psychotherapy alone – to heal with words. It is wonderful to see how a person suffering from depression can come to life before your eyes.

The tempo is also different from other medical fields. You won't be getting up in the middle of the night to go save lives. So it's good for people who don't want to work at the urgent pace of some medical professions. What is essential is to be patient and to like people.

How strong are stigmas or prejudices when it comes to psychiatry or mental illness? Are they disappearing?

Unfortunately they are not and this is true around the world. Patients, their loved ones and psychiatric care personnel, are all viewed negatively and here the situation is very poor: only eight percent of Czechs say they would be willing to work or be friends with someone with a mental problem. Compare that to 56 percent in England. Only three percent of Czechs would be willing to live with someone with a mental health issue, or seven percent to have a neighbour with such a problem. There are segments of the population that see things differently and the prejudices are less pronounced the younger people are. Med students receive special training where they meet people who share their experience with mental illness and this goes a long way in reducing stigmas. The same is true when people in the medical profession share their experience. It is very important to speak about mental illness because there are a lot of people who don't know what bipolar disorder is, or schizophrenia or what the signs are and how the illness takes hold.

How do you counter prejudices?

Even a person suffering from mental illness may be unaware, thinking they are healthy. A study from 2017 suggested that about 20 percent of Czechs suffered from mental issues over the last year but only a fraction of them sought professional medical help. It is alarming that 10 percent of Czech adults have drinking problems but more than 90 percent do nothing about it.

Mental health and mental hygiene are being discussed, more and more, by well-known personalities as well as influencers and that can give people hope or inspire them to seek professional help. There are also organisations such as Nevypusť duši that speak openly about mental health and offer information.

When it comes to psychiatric care, what are some of the biggest myths?

Many people think that psychiatric care does not have effective methods and does not significantly help patients but that is not at all true. We have a wide range of healing methods at our disposal. Psychiatric treatment, the same as other medicinal fields, is based on scientific findings and results.

Another myth is that all patients suffering mental health problems are violent – we've all seen horror headlines in the media. It's true that someone who is not adequately treated, who is delusional, may act violently because they feel threatened or try to defend themselves, but these kinds of mental states are treatable and a patient, receiving the right care, can lead an entirely normal life.

The pandemic placed health care professionals under an enormous amount of stress; are you also teaching students how to cope?

All of the medical faculties offer psychological training courses, teaching students not only how to communicate with their patients but also how to take care of their own mental health. At the Third Faculty of Medicine, we pay a lot of attention to teaching *mindfulness*. It is being shown that mindfulness techniques are very effective, improving empathy, communication, lowering stress and offering positive effects on one's life. It's very useful, not just for med students.

As a technique, mindfulness teaches you to focus on the present – without judgement or expectations. Imagine the opposite and you get autopilot. You can train mindfulness through meditation, which is growing increasingly popular, and it is getting the attention of experts: it is proving to have even a physiological effect – lowering the stress hormone cortisol, improving the immune system, lowering cholesterol or certain tumour growth parameters.

Tips for good mental health during Covid (and not just)

- Get enough rest and sleep
- Maintain a quality balanced diet
- Don't drink alcohol
- Stay physically active, get exercise
- Spend time outside, in nature if you can
- Stay in touch with your friends, socialise at a safe distance, or online
- Maintain a regular schedule
- Avoid rumination ie. leading to negative thought patterns
- Try mindfulness techniques
- Consume a careful media diet – don't binge, choose reliable sources

Many people think that psychiatric care does not have effective methods and does not significantly help patients but that is not true. We have a wide range of healing methods at our disposal.

What kind of an impact has this period had on mental health?

At first, there was a lot of anxiety from the unknown and it took away our regular lives and sense of safety. At the start, everyone followed the rules and the restrictions. As the pandemic continued, people grew tired and undisciplined and no longer upheld safety measures.

For health care personnel, the situation was different: they were under enormous pressure right from day one. In the beginning, they lacked PPE, they saw people abroad dying in the first wave and things only got worse since the autumn. There were not enough people on staff, they worked overtime, they worked in teams where they didn't know each other well or weren't fully in sync. And they saw people, regardless of the treatment they received, who were dying. For health care personnel it was an extremely trying time, both physically and mentally. Spending many hours at a time in maximum protective gear.

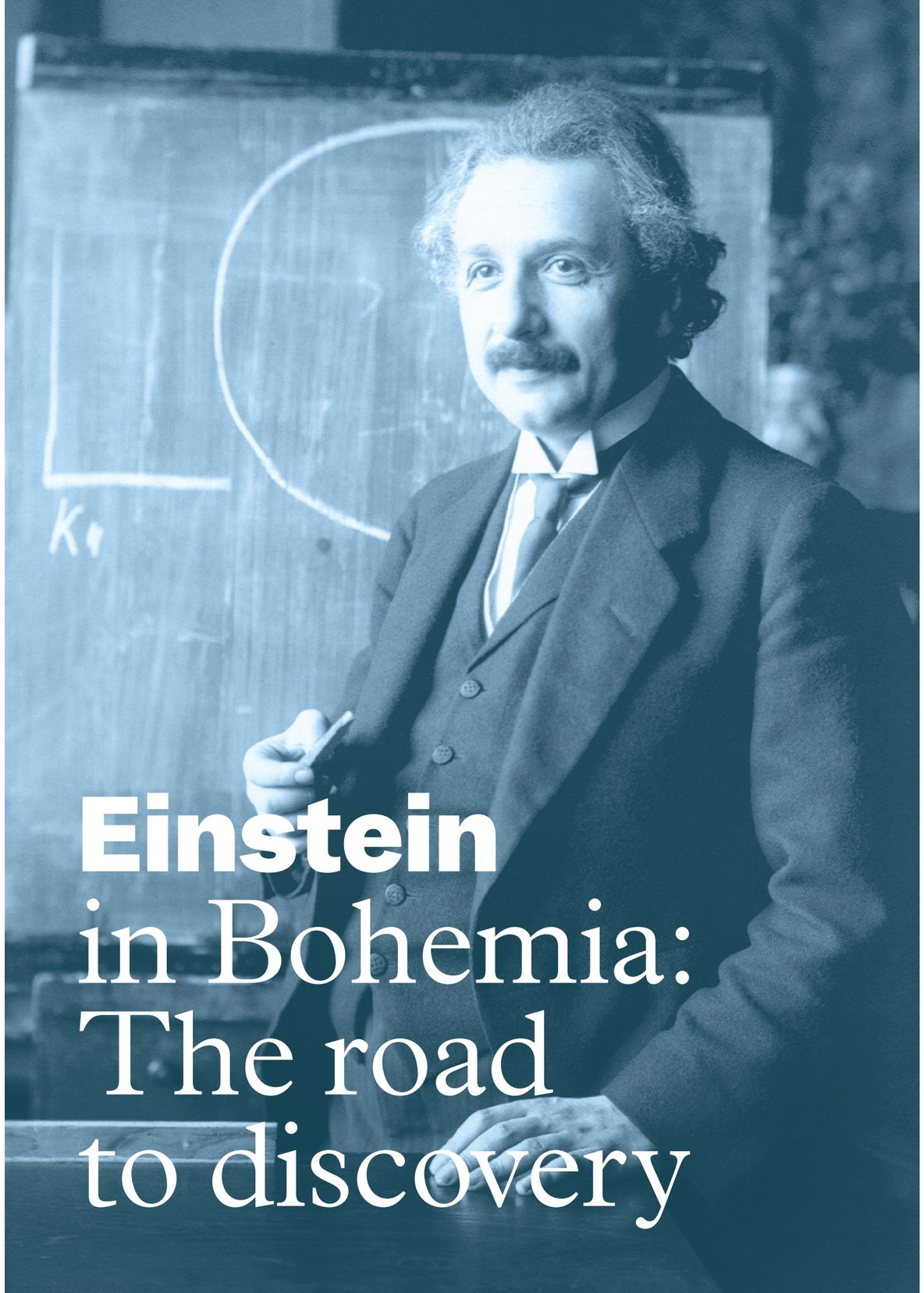
If someone needs professional help, what are the signs?

It's normal to have a bad afternoon once in a while. But if you have been feeling hopelessness for a longer period, if you realise you have been sad for 14 days straight, if you cry easily and often or begin getting thoughts about taking your life, that's the moment to immediately seek out help and not delay. To pick up the phone and call the centre for crisis intervention that operates 24 hours a day every day, where you can talk to someone who will listen.

Professor Lucie Bankovská Motlová teaches psychiatry and medical psychology at the Third Faculty of Medicine at Charles University. She completed her studies at the First Faculty of Medicine and her doctorate in psychiatry at the Faculty of Medicine in Hradec Králové. In her work she focuses extensively on the destigmatisation of mental health as well as the importance of treatment and educative programmes. She spent two years at the University of California, Berkeley in the US.

How do you care for your own mental health?

Physical activity: I love dance, ballroom and Latin American, and when I can, I dance. I like skiing, which was off limits, and I exercise every day, especially for strengthening the core body – the back and stomach. I don't drink. I meditate, at least for a few minutes if I don't have time. And the other thing which is fantastic? We have a dog. Dogs are excellent company and force you to get out of the house and go for a walk. If you have a dog you are never alone.



Einstein in Bohemia: The road to discovery

It has been 110 years since Albert Einstein arrived in Prague for his tenure as a professor of theoretical physics – 16 months in his life that were often overlooked. *Einstein in Bohemia* by historian Michael D. Gordin changes earlier perceptions, showing that it was in Prague that Einstein shifted full-time to the study of gravity. The scientist was also confronted with questions of identity he had not faced before.

STORY BY Jan Velinger PHOTOS BY Martin Pinkas, BHM.ch public domain

I spoke to Michael Gordin on a line to the US, asking first what Albert Einstein had meant to him as a youngster growing up.

As you might imagine I was always fascinated with Einstein, even as kid, although I obviously didn't understand the science until high school, when I was introduced to special relativity. I had seen the posters and the quotations and he was very charismatic and photogenic, so I had a vague understanding of who he was. His brilliance had an appeal that lasted even when I grew up.

As an historian of the physical sciences, I had a general understanding of the arc of his career and his achievements, but I had always thought about him biographically, even before starting this book: looking at his life as a unit and bending the events that happened around him to make a coherent life story. It makes sense that most of the books written about Einstein are biographical because he is very appealing as a character, significant as a person, and his life is fascinating: he intersected with many of the currents of the 20th century.

But upon writing the book, I wanted to see if I could go the other way: instead of bending the events so his life would be foregrounded, I wanted to try and tell the events centrally and "bend" Einstein instead. As a result, Einstein is not *always* the main character of the book, although he appears in every chapter.

My feeling beforehand was that Einstein was going to be the central character of the book but the more I researched, the more he became a character among several others, one of which was the city itself. That was a productive realisation and a real change in how I thought about him.

The book covers a very specific moment in Einstein's life that is often completely overlooked: when he got a full professorship at the German University in Prague and lived here for 16 months. It came practically at a midpoint between 1905 and 1915, the dates of his biggest breakthroughs. Were there similar breakthroughs in 1911 and 1912?

There were not. I suppose when I set out I had a hope I would uncover a secret breakthrough, but there wasn't one. In the end that turned out to be part of the appeal for me in researching the book: I wanted to look at a period in Einstein's career and to see what it looked like at a moment when he wasn't in the middle of an earth-shaking discovery. That is, when he was working as an ordinary scientist, as "ordinary" as Einstein ever was, someone working on various projects.

He was already very well-known in scientific circles for his earlier work: the publications in 1905 on Brownian motion, special relativity and quantum theory, but he wasn't world-famous yet. He wasn't yet at his peak achievement, general relativity. It can appear that he was between things but he was living a very productive career even if he wasn't the "Einstein" that we think of when we think of him now. And so 1911/1912 was a good way of capturing that: a productive scientist who knows he has already done great things and hopes to do more in the future.

But something very important did happen in this period: it was the moment when he shifted his attention away from working on quantum theory to thinking full-time about gravity, which would eventually be the grounds for general relativity. Both historians and members of the public tend to think about breakthroughs and looking at those specific moments, and this book instead looks at how he was just starting on that path to general relativity. It can be quite revealing to look at a period when he was starting on a new project. During this Prague period, he finally had the time to start on it. ↪

How did Einstein describe this moment in his letters?
Einstein always worked very hard and a constant refrain in his letters from Prague is that he was "working like a horse"; this was not unique to his Prague period, Einstein always worked very hard. He also encountered many roadblocks. The theories he developed in Prague were promising but didn't work and he realised that.

What was the theory he was pursuing?
He was attempting to generalise his special theory of relativity from 1905, that looks at making frames of reference equivalent. But the special theory only looks at them when the frames are moving at a constant speed. What he wanted to do was see what would happen if he incorporated acceleration into that. Two years later, in 1907, he realised that if you did that the result would look a lot like a theory of gravity. That was an insight he had that he was very excited about, but didn't have time to work on because of his focus on quantum theory.

There are two reasons, I think, why it is important to pay attention to the static theory. The first is, that even though it didn't work, it still got him on the path of thinking through the hard questions and the realisation that the geometrisation of space-time was going to be necessary. That's the path he took from when he returned to Zurich after Prague in 1912, straight through to the end of 1915 when he published the theory we still have. That's the first reason: the failure was in itself the beginning of a success. What happened when he arrived in Prague is he immediately started working on exploiting this insight about gravity and general relativity being the same theory, and he worked hard at it. But it turns out it doesn't work. The reason why is because what he called his "static theory" had a space-time that was flat and Euclidean – instead of bent and curved and warped, which is what he worked with later. Over the course of 1911 and 1912, he realised that the theory wouldn't work in the way he was approaching it and that he would need to modify the geometry of space-time and use a much more elaborate mathematics in order to capture the insights he was interested in. He didn't know the math yet and understood that he would have to develop a whole new set of skills.

The second reason is that while he was in Prague working on this he realised that one way you could test a theory of gravity was to look at the bending of starlight around a heavy astronomical body such as the sun. In the fall of 1911, he began discussions with astronomers to measure starlight during an eclipse so he could test some of his ideas. Leo Pollak, an astronomer at Charles University, put Einstein in touch with Erwin Freundlich from the Observatory of Berlin, who set up an eclipse expedition in Crimea in the summer of 1914. But of course the First World War broke out. Freundlich was interned by the Russians as an enemy alien and didn't make the measurements: those would be made only in 1919 by British astronomers with a very different theory – full general relativity – and that made Einstein very famous.

The result is that while many in the past skipped over Einstein's time in Prague, it wasn't unfruitful.
It was rewarding both scientifically and also personally: he made connections in Prague that at the time may have seemed ordinary or everyday but which would have a lot of implications later in his life.

You talk about Prague as also being one of the "characters" in the book: what kind of a city was it? As you mentioned, it was a few years before the war, and although the inhabitants didn't know it at the time, huge changes were around the corner. Eventually, it would be the capital of an independent Czechoslovakia in 1918.
I like to think of Prague as both a central place and a marginal place at the same time in the context of the Austro-Hungarian Empire. It was the third city in the empire, behind Vienna and Budapest, but it was still extremely important. Bohemia and Moravia were economic powerhouses in the empire, and Prague sat at the midpoint of the train line between Berlin and Vienna, so it was an important connecting node between the two metropoles in the German-speaking world.

Prague at this moment was a very dynamic city, with a lot of economic and cultural activity. In terms of literary achievement, there was the development of Czech language letters at this time, although the take-off of Czech modernism really began around 1911 or 1912. In terms of German *belles lettres*, that had started with Rainer Maria Rilke already writing, joined at this moment by Franz Werfel, Max Brod, and little bit later Franz Kafka. Much like Einstein they were at a kind of middle point, following an achievement, and not knowing what yet lay ahead.

Prague was the third city in the empire, behind Vienna and Budapest, but it was still extremely important. Bohemia and Moravia were economic powerhouses in the empire, and Prague sat at the midpoint between Berlin and Vienna - two metropoles in the German-speaking world.

A plaque on Prague's Old Town Square commemorates Einstein's participation at the Fanta salons. Historian Michael D. Gordin says that Einstein probably shook hands with the writer Franz Kafka, but that their meeting was not as important as many would like to believe.

Prague to me feels the same way: it was very vibrant with a lot of cultural and economic ferment and, at the same time, it was not the capital of an independent country yet and it was not obvious in 1911 or '12 that it would ever be so, nor that the Austro-Hungarian Empire would prove to be so brittle.

In the book, I am interested in the connections and the kind of overlap, if you imagine those circular Venn diagrams, between Einstein and Prague. Sometimes the story takes place after Einstein is gone and sometimes the story follows the remnants of Einstein's experience with Czechs and Germans from Prague as well as how they continued to shape his life later on. So the city itself is a character, as is the memory of the city and the relationships that he built while he was there.

The fact that Einstein spoke German but not Czech also influenced his interactions. Is it fair to say he was isolated?
He was indeed a little isolated. If you look at the census, around 23 percent of the population in the Czech lands listed German as their everyday spoken language, but in Prague the number was far lower: only about seven percent. Within that community, the Jews were split into two groups: there were more Czech-speaking Jews than German-speaking Jews. The German-speaking community, despite its small size, still occupied many elite positions in culture but also in banking and so on. Finally, a huge part of the city was bilingual.

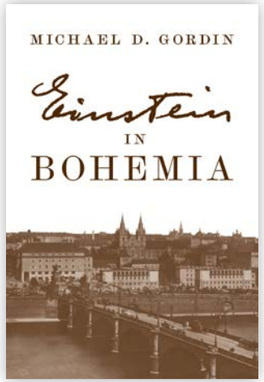
I don't want to reduce it to language and demographics, but Einstein arrived at a city where, speaking only German, he was confined to certain circuits. The most obvious circuit would be the professors at the German University, who tended to be older and more politically conservative and he didn't enjoy their company very much. So he ended up being isolated in that way. He did find some German-speaking friends among educated Jews, which I think was a surprise to him. He didn't break into the Czech community at all during this moment in 1911 and 1912.

His circle of friends in Zurich was not that much larger than this, but he was only in Prague for a short time and did not have time to build up many friendships, so he was in as sense isolated and worked all the time. I don't think he was necessarily unhappy, but the strain of isolation was felt more by his family: his wife and two sons.

What did he do for intellectual satisfaction or entertainment?
Einstein played the violin and met with a quartet. He wanted to play in a string quartet and they performed Mozart and Bach most often, which were his favourites. One of the auditors in his class was Hugo Bergmann and he took Einstein to the salon of Berta Fanta, his mother-in-law. She was the wife of the pharmacist Max Fanta, who owned a pharmacy on the Old Town Square called The White Unicorn. Einstein first went there with Bergmann and would play music with other string players, and at one point the novelist, journalist and translator Max Brod accompanied him on the piano. So he met an interesting set of people in that world – mostly Jewish, but not entirely, and well-educated.

At the salon they also held lectures about what was going on. Einstein gave a lecture on relativity in May 1911 shortly after arriving, which shows how quickly he entered that realm. At one of those meetings, probably that one, Franz Kafka was present. We know this from one year we have of Brod's

↳



Einstein in Bohemia
Michael D. Gordin
360 pages
Published by
Princeton University Press

diary – that Kafka came to one meeting with Einstein but not the next. The diary includes this moment. Kafka and Einstein probably met and shook hands.

The Kafka meeting of course captures the imagination straight away and it is fascinating to imagine these great minds coming together in this small space. But the impression is overblown, correct?
I always feel like a bit of a spoilsport when describing this episode, because it was fairly insignificant. It is so obviously what would happen if we were writing the movie: one of the greatest minds in science and one of the greatest minds in literature meet. Both transformed their fields, both were Jewish [and it should have meant something]. You want to believe that everything lined up – and it just didn't.

It's frustrating because they probably did meet each other. The reason I think it was insignificant is, first of all, because Kafka just didn't go to the Fanta salon that often, so he and Einstein may have met as many as three times or just the once. But here's what's strange: afterwards, neither of them remembered it.

In Prague, Einstein was confronted with questions of identity: he was secular Jewish, born German, with Swiss nationality: while here, did he begin to think about his identity more?
Prague definitely forced him to think about his identity differently. It depends on what you mean by *confrontation* and whether it was sharp or aggressive, but I definitely think it was important. It marked him in a certain way, especially his Jewishness. When he arrived he had to swear an oath to the Kaiser in Vienna as a civil servant in the Hapsburg Empire, and he wrote in the documents that he was without religion, which is also how he was registered in Switzerland. The German word is *konfessionslos*. It's an important kind of registry because some of your taxes would go to support Churches by population, so saying what your faith had implications for the census and tax bureaux.

In Bohemia, he wrote down *konfessionslos* in the form and the Habsburg officials crossed it out, saying you can't swear an oath if you don't believe in God. So he had to have a religion. They wrote in *mosaisch* instead, and years later Einstein would joke that it was the Habsburg empire that made him a Jew.

Also important while in Prague was that he encountered Zionism as an intellectual movement. He may have heard about it before, but it hadn't registered. He had been interested in Judaism at age 11 and 12, he studied for a bar mitzvah and then he stopped. He decided that he didn't believe any of it and focused his attention on science instead. From that age, until the age of 32 in Prague, I think he probably had very little connection to the traditions and the community. But in Prague he got to know Hugo Bergmann, who later became an important philosopher and an administrator at the Hebrew University in Jerusalem, and Max Brod; both were very engaged in Zionism.

A lot of the discussions at the Fanta salon were about Zionism, but in 1911 Einstein didn't care for it. He disliked the idea because he thought of it as medieval – both backward looking and nationalist. He was strongly opposed to all forms of nationalism, which he saw as militarist and dangerous, and preferred to think of a community of humanity, linked to his own pacifism.

So Zionism didn't register as anything he wanted to be associated with – that only happened later. But Prague situated Einstein: both in terms of "the world was going to classify him as a Jew no matter what he thought about it" and eventually that Zionism didn't have to be nationalist and was something he could become involved with. That's the Jewish side.

He also thought of himself differently as a German: for the first time as a German-speaker he was part of a minority, which was not the case in Germany or Switzerland. He was conscious of the Czechs seeing him not as Jewish but as German, so he began thinking about himself as a German, and that took root in Prague.

At what point during his sojourn – his 16 months in Prague – was Einstein happiest?
That's a wonderful question. I would say one moment was the summer of 1911. He didn't go anywhere, he told everybody he was just going to work on the gravity theory, he liked his library, he was happy with his office, and he spent a lot of time really focused on the science. It was summer, it was warm, the weather was nice and they could go on walks and the family was happy – that was sort of a golden moment for him. When he wrote to people in August and September, it sounded like he was going to be in Prague for a while and that was what he then intended. But then he got a number of job offers in December. So he left in the summer of 1912 – but that wasn't what he had planned.

One thing you make clear is that there are different "Einsteins" at different periods: the Einstein in Bern, then Berlin, and much later, Princeton. Ultimately, who was the Einstein in Prague and was he defined by Prague, at least in part?
Politically, he wasn't very engaged with Czechs while he lived here but after he left, he came back one more time in 1921. And then he was enchanted, for a very specific reason: it was now an independent country, it was no longer a monarchy, which he always had a problem with. And it was *the* state with in Central Europe that had minority protections built into its framework, for the Germans and explicitly for the Jews, which was something that Brod was really involved in lobbying for, and this really impressed Einstein.

That is why he joined in nominating T. G. Masaryk for the Nobel Peace Prize for his protection of minority rights. He was very taken with Masaryk, who he thought of as an exemplary statesman and so was interested in Czechoslovakia as an experiment and as a democratic future for Europe.

If we turn back to Einstein's great scientific contribution, general relativity, how do you rate it as a sheer intellectual feat?
To my mind, the Theory of General Relativity is probably the most important and exciting intellectual achievement of the 20th century. It is a staggeringly impressive feat of thinking. After all, we'd been relying on Newtonian gravity since the late 17th century and it is pretty accurate. With Newton there were a few minor problems around the edges but nothing that anyone was that worried about. None of it would matter because no one was traveling to other planets, no one was dealing with cosmic events. And here you have a person who just thought logically about how to understand how space and time and motion interact and out of that comes a theory of gravity that is incredibly complicated but incredibly accurate.

It allows us to calculate how things like black holes operate. We can now take photos of black holes. Things that we never thought possible can be done because of this theory from 1915 that was worked out by Einstein in discussion with very few other people. It was a fascinating and quite unintuitive way of thinking about the world: that space and time are warped by matter and energy to create the force we know as gravity.

Michael D. Gordin is a professor of the history of science at Princeton University. His research focuses on science in Russia and the Soviet Union, Central Europe, and the United States. He is the author of six books, including two on the history of nuclear weapons and one, *Scientific Babel*, which explores the history of diverse language use in the sciences before the rise of global English. He is currently working on a global history of science after the collapse of communism in the Soviet Union and East-Central Europe.

A med student making **a difference** in Uganda

Even as a little girl she dreamed of one day being a doctor and later admired the organisation *Doctors without Borders*. Now, med student Markéta Malecová is close to completing her studies and becoming a doctor herself. As a student she has already made a big difference, helping children at Whisper's Magical Children's Hospital and Maternity in Jinja, Uganda.

STORY BY Marcela Uhlíková PHOTO BY Vladimír Šigut

Malecova first travelled to Uganda in East-Central Africa in 2018 and a year later founded a Whisper's charity fund branch in the Czech Republic to boost support for the hospital, for which she later received the Laskavec 2020 award. Many of the children treated at Whisper's in the past suffered from severe malnutrition – and the economic impact of the pandemic only made matters worse.

Before we get into the details, I have to ask: you are so active in so many areas, where do you find the time?
I guess I am involved in a lot of things but it's doable. During the pandemic there were many moments when things were really hectic. When I would be helping in the hospital during the day, then catching up on lectures I'd missed in the evening, all the while putting together a crisis plan with colleagues for the hospital in Uganda. I must admit it was quite a lot to take on. Otherwise, I think it's manageable as long as you have proper time management. If you want something badly enough, there's always a way to achieve your goal.

What inspired you to travel to Uganda for the first time in 2018?
As far as I can remember, UNICEF documentaries – about malnourished children waiting for help which didn't always arrive – always made an impression on me. I think that was the first impulse for me. Inequality, injustice and unfairness, whether on a personal or on a global scale, bother me: why should a child in Africa face much tougher starting conditions in life than a child in Europe? When I heard about Whisper's, I exchanged a couple emails with founder Veronika Cejpoková and I ended up buying plane tickets and departed for Uganda two months later.

Med student Markéta Malecová comes from Litomeřice, in the Ústí nad Labem region northwest of Prague. She is on the verge of completing her sixth year at the Third Faculty of Medicine at Charles University. Since 2018, she has travelled to Africa five times to help take care of children at a local hospital. In 2019, she founded a charity in the Czech Republic to support the facility and its work.

You have helped a total of five times at the Magical Children's Hospital: how hard was it to find time to go?
Luckily, I was always able to find some time between my studies and other responsibilities: most often I would go there over the summer holidays or during exam periods after I completed my exams. Thanks to permanent registration with the Embassy of Uganda in Prague – and because I got all compulsory and recommended vaccinations – I have an advantage when applying for a visa. Whenever there is an opportunity to go, I can leave almost immediately. The only thing that stopped me over the last years was the pandemic. I felt useful and needed at the Covid testing centre at Bulovka University Hospital. Also, the Whisper charity fund here takes quite a lot of time and work: although the lockdown in Uganda ended in May of 2020, the impact of the economic slowdown is going to affect us for a long, long time. We saw a fourfold rise in the number of malnourished patients because of the economic downturn. And, last but not least, I needed to finish my studies. As soon as it will be possible, I will go back.

Now that you are almost done, do you know what area you want to specialise in?
Since the third year I got really interested in the field of gynaecology and that hasn't changed *(laughs)*. I want to, understandably, remain involved in humanitarian aid, and it would be great if I could do both at the same time. But who knows how things will turn out: I am not making any final decisions yet. I am also interested in surgery, which is a field often more common to men, but we'll see.

Speaking of your charity: are Czechs generous when it comes to giving to a hospital "somewhere" in Africa?
I experienced generosity as well as rejection. There are a lot of people who are interested. They only need to work through the information and be assured they are giving to a project which makes a long-term difference. Once they know, many of them choose to supoort us. Then there is a different group of people with a totally different point-of-view: Help Africa? No way. And there's really nothing you can do to change their minds.

At the charity fund, I am responsible for people who want to help. I take care of fundraising, which includes bringing together financial resources but also PR and promotion. I coordinate volunteers from all walks of life who would like to volunteer in Uganda. People who join the program and help in Uganda are not only doctors or med students, far from it. I am very happy that interest has not faded and that people really want to help. All you need is English and a desire to help.

Last year your charity caught the attention of many when you were awarded the Laskavec prize recognising good deeds and civic responsibility, given by the Karel Janeček Fund. What was your reaction?
When they called to tell me that I had been nominated I was shocked. I was really honoured to be chosen and happy that someone had noticed my work. What I'm doing in the Czech Republic is almost invisible compared to the work of hospitals, so I am glad it got attention. I donated the financial prize to our hospital where it was used to buy a new phototherapy machine in the maternity ward.

What do you do when you need to get away from things, to relax a bit? Is it true you were once on the Baník Most basketball team? A center?
(laughs) That's true. I used to play basketball and was on a bunch of different teams. When I got older I even coached a girls' team for a while in Litoměřice. Nowadays, I like to take walks in nature, which are perfect for recharging my batteries. I still do a lot of sports and in the winter you'll most often find me in the mountains, cross-country skiing.

Inequality, injustice and unfairness, whether on a personal or on a global scale, bother me: why should a child in Africa face much tougher starting conditions in life than a child in Europe?

Science Fiction: A **playground** for ideas

"Have you ever imagined what life would be like if it evolved in a cold ocean beneath an impenetrable shell of ice, or on a world whose haze obscured the universe beyond?" That is a question posed by Julie Nováková, a biologist and Ph.D. student at Charles University, who headed a successful campaign to publish a new sci-fi anthology.

STORY BY Jan Velinger PHOTOS FROM Julie Nováková's personal archive, EAI, Shutterstock

Julie Nováková told us more about the book (launched by the European Astrobiology Institute) and also the importance of science popularisation and outreach.

Science fiction is a big part of your life: how would you describe its importance?
For me, science fiction is both good entertainment and a sandbox for new ideas, for exploring certain ways that technology – as well as new scientific discoveries – could change our world. As an editor, as well as a reader, I love stories that imagine the "what ifs" that are central to science fiction. For example, what if we colonized Mars and only then discovered traces of local life that had once existed. We can explore scientific, societal and technological aspects, and this is what I love about science fiction most: the way it allows us to imagine different worlds that could potentially become our reality and different things that could exist.

It has been called the "literature of ideas" and when it comes to accuracy we've had all kinds of experience in the past, some stories more accurate than others – but always stimulating. One of the classic examples is "Where are the flying cars?" which were envisioned in a lot of pulp sci-fi in the 1930s... But on the whole, a lot of it has also been fairly accurate.
I agree. We can see quite realistically imagined space travel in science fiction already in the early 20th century. After all, the father of rocket science, Konstantin Tsiolkovsky, also wrote science fiction stories and novels. Other authors, such as Arthur C. Clarke, wrote about using geostationary satellites for worldwide communication back in the 1940s – before spaceflight had even begun. So that is a pretty good track record.

But I would also like to add that it is not the aim of science fiction to simply predict the future: I think that the strength of science fiction lies precisely in extrapolating how different developments would impact our civilisation and humankind. That doesn't necessarily have to be realistic: there are wonderful science fiction – or fantasy – books which are very relevant, but not very realistic. Nevertheless, the stories in the planned anthology, *Life Beyond Us*, in general get the science right. Not necessarily completely, but at least the basic points.

One of the aims of the publication is to serve as a popularisation tool. Tell me about the institution behind the project.
The European Astrobiology Institute (EAI) was founded in May 2019 and is a conglomerate of mostly European institutions: research institutes, universities, and agencies, that aim to facilitate research in astrobiology and to support science education and outreach. Several summer schools and conferences had been planned but, unfortunately, the pandemic in early 2020 limited us to largely virtual events.

Last year, you gave a talk about the roots of science fiction and how far back they go, and while most of us would pinpoint the start of science fiction in the 19th century, the core question "What is out there?" far precedes that.
You have elements of science fiction in ancient myths and legends. We have stories such as *The Tale of the Bamboo Cutter* from 10th century Japan, which features a moon princess who comes down to Earth before eventually returning home to her people. The moon is the centre of many of these tales and legends, because it has been with us since the beginning of history and plays an important role in mythology. But some cultures imagined that there might be life on different worlds farther away. Later on, in the Renaissance, we got a boom of what might be called pre-science fiction. *Somnium*, a novel by Johannes Kepler, was published posthumously; apart from the fact that we now know that the moon is incapable of supporting life, the astronomical depictions were actually pretty accurate, at least for Kepler's time.

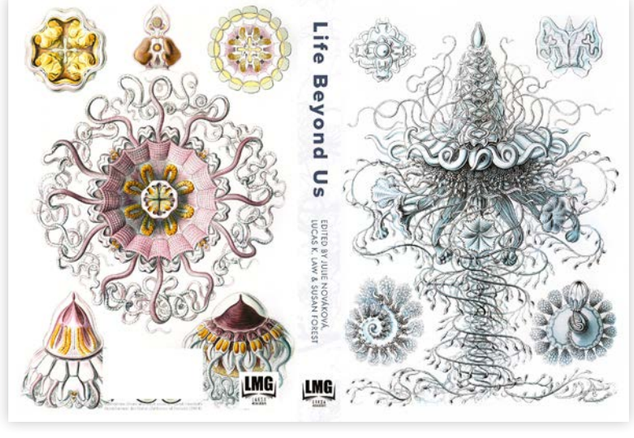
Modern science fiction, though, got its start in the early 19th century with Mary Shelley's *Frankenstein* that is still a prime example of how science fiction can help us imagine the impact of science on society and individuals and especially unintended consequences. That shows that we have to tread carefully. Later, you have Jules Verne and H.G. Wells and authors in the late 20th and early 21st century to get to where we are today.

Another aspect that is notable is just how inspiring science fiction can be – from someone taking science classes at school to visionaries like Elon Musk.
Today's entrepreneurs like Musk or Jeff Bezos have repeatedly mentioned how inspired they were by science fiction as kids and adolescents, that it provided a vision of venturing beyond Earth and focusing on space flight and space research in a way that they would not find elsewhere.

The last year or so was very tough because of Covid, but at the same time some of the things that were uplifting were ongoing advances in science, whether we are talking about the successful landing of Perseverance on Mars, or the flight of its helicopter. Scientists are also discovering more and more exoplanets all the time. In that respect, advances are not only at the front of scientists' minds but also have captured the imagination of the public.
It is exactly those reasons that make astrobiology perfect for science outreach in general. It is something that draws public attention, asks questions that are very captivating such as whether we are alone in the universe, whether there was life previously on other planets in the solar system or whether it could exist somewhere else in the system even now. It is very interdisciplinary and it can be used to communicate more abstract concepts such as the science of spectroscopy that analyses the light from distant stars. Starlight that goes through the atmospheres of planets enables us to probe the chemical composition of those atmospheres.

In itself, it can seem very abstract, especially if we went into all the details, but when wrapped in the astrobiology label, it becomes more accessible and relevant. Knowing the atmospheric composition of exoplanets can help us ascertain whether they have conditions for life or even whether the activity of life has altered the composition of atmospheres such as released molecular oxygen the way photosynthesis does here on Earth.

That reminds me of a popular TV series that came out during the lockdown called *Alien Worlds*. Its depicted what life could be like on a number of exoplanets. Perhaps the most interesting thing about the documentary was the flipside: what it revealed about life ↪



***Life Beyond Us*, special limited edition cover. The project was successfully funded on kickstarter.**

here on Earth. After all, there are places on our planet where conditions are so extreme they could arguably be described as "alien" and were previously thought unable to support life. Yet scientists have known for quite a while that is not the case: areas that are scorching hot or at great depths in the ocean beyond the reach of light.

In terms of science outreach that [kind of documentary] can explain different effects of gravity, atmospheric pressure, and different starlight, and how they would alter life if it existed elsewhere. Here we know that conditions for life on high peaks or deep in the ocean are very varied and different in terms of how it adapted. Trying to imagine life on other planets is speculation, but if it is science-based speculation, it is also useful in outreach.

You mentioned extremely hot environments and that brings us back to the usefulness and need for pure research as well. Not only is it essential in itself, but it can provide us with extremely useful applications: when the species of bacteria *Thermus aquaticus* was discovered at Yellowstone National Park, no one imagined that it would change the world as we know it. But today we are using its enzymes to sequence genomes much faster, and that enables us to test for the coronavirus, if we return to the topic of the pandemic. A discovery that may have been seen as very inconsequential at the beginning by the public ended up changing the world very much *[Editor's note: News of the discovery dates back to April 1969]*.

If we turn to the book, how many authors are in the mix and, generally speaking, how varied are the views when it comes to the question of life beyond our planet?

There are 22 stories and each story is accompanied by an essay by an EAI scientist, so in total there are 44 different authors. If we focus on the stories first, the views are very different also in terms of topics. We'll have stories about life on Saturn's moon Titan – an extremely interesting place – the only moon in our solar system with a substantial atmosphere that is even thicker than our own. There is lots of liquid on its surface but it's not liquid water, but light hydrocarbons such as methane or ethane, and lots of interesting organic chemistry.

It has long been speculated that it might be a site for alien life, but of course not life as we know it, because it would have to be adapted to a different solvent. Light hydrocarbons are nonpolar as opposed to the water molecule, which is polar and has an unevenly distributed charge. So it would basically turn the chemistry of life on its head compared to what we know here on Earth. The temperatures are also extremely cold there. NASA will be sending the Dragonfly probe there in about 15 years' time. Until then we can explore what potential life might be like there with science fiction.

We also have stories about SETI and how we are trying to listen for radio transmissions as a sign of alien civilisations and why it is not easy. There are even more exotic environments and lifeforms, stories about space colonisation gone wrong and planetary protection: trying not to contaminate other celestial objects, and also to avoid back contamination – bringing alien life back to Earth with potentially severe consequences.

It could produce metabolites which would be poisonous to Earth life, or could outcompete Earth life when drawing some biogenic element from the environment, such as sulphur or molybdenum, and that could threaten whole ecosystems and the Earth's biosphere. That's why avoiding contamination is so important. There is a lot to explore there from the point of view of science fiction and areas to explore on how to prevent it. That is just a small snapshot of some of the things that will be in the book.

The accompanying essays are a very interesting and important aspect and I imagine a kind of anchor when it comes to science fiction and hard science.

They take the science even further and explore it more in depth. A fiction story can only say so much about the science while focusing on the story, but the essay can go further. If we take Titan as an example again, it not only has the hydrocarbon seas and oceans and rivers, but it also very likely has a water and ammonia sea deep below its icy shell, which could also potentially host life or interact in interesting ways with the surface chemistry. It's not likely all of that would make it into the story, but the essay is there for the curious reader.

Are the stories that will feature in *Life Beyond Us* new, previously unpublished? And the big question: who are some of the authors?

All the stories are completely new, commissioned for *Life Beyond Us* and connected by the common theme of astrobiology. We have authors from all around the world, from Europe, Australia, Canada, the US and elsewhere, quite a broad cross-section.

As far as the writers are concerned, Peter Watts is pretty famous and his novel *Blindsight* was also translated into Czech. It's a brilliant novel using hard science. It is about a human encounter with an alien intelligence in a way most of us wouldn't imagine it. Another well-known author is Gregory Benford, a veteran of science fiction who published many novels with Larry Niven, also frequently translated into Czech. Mary Robinette Kowal is famous for her Lady Astronaut series, an alternate history when an asteroid hits Earth in the 1950s and prompts people to jump-start space travel and establish colonies on the Moon and Mars with 1950s technology. She has just been nominated for the Hugo Award in two categories: Best Novel and Best Series.

I love how the series reads almost like history novels, with very realistic technology inspired by actual spaceflight history, and at the same time creates a completely different world. Her story in the anthology will also be set in this alternate universe and it explores exoplanet detection. Stephen Baxter is also very famous and there will be two Czech authors, Tomáš Petrásek – who is active in astrobiology and science outreach besides writing SF – and Lucie Lukačovičová, who is well known in Czech science fiction and fantasy circles.

Ph.D. student Julie Nováková is a scientist, educator and award-winning author and editor. She has published seven novels, one anthology, one story collection and over thirty short pieces in Czech. Her work in English appeared in *Asimov's*, *Analog*, and *Clarkesworld*. Her most recent project is *Life Beyond Us*, an anthology of 22 SF stories and 22 accompanying astrobiology essays.

Getting original stories from professional authors for a new anthology was the reason we went with a crowdfunding campaign, because that is one way of covering all of the associated costs.

I'd like to finish along the lines of how we started: the future. Against the immense endeavour of future planetary exploration, we face massive problems on our own planet, from overpopulation and dwindling resources to global warming and pollution. Should we be focusing on the stars when there is so much unsolved and unresolved at home?

I don't think it is an *either/or* question. It takes us back to the topic of pure research already mentioned: if you imagine technology such as spaceflight, it allows us to devise many solutions even in other areas. If we go back to the *Thermus aquaticus* example, if that hadn't happened, we wouldn't be nearly as far along as we are today when it comes to real applications. We wouldn't be able to do fast PCR tests for Covid-19, to sequence the genome as quickly and so on. To blame spaceflight for diverting resources is, I think, unfair and it is one of the smaller expenses by comparison to all the other things the EU or the US, for example, spend money on. We need space research for the pure knowledge and eventual applications it brings us, as well as for successful spaceflight.

Four **wheels,** one board

Over the last few years, more and more young people in the Czech Republic have taken up longboarding, a hobby and sport related to skateboarding but different in many respects. Longboards, as the name suggests, utilise a longer deck but feel very different, offering a more stable ride on softer polyurethane wheels. There are decks for every kind of rider and for different uses: cruising (traversing park paths or getting around town), carving on hills, freestyle, dancing, slalom, as well as the jaw-dropping adrenaline sport known as downhill longboarding. Downhill, for short.

STORY BY Jan Velinger PHOTOS BY Michal Novotný, Martin Pinkas

The first time you see someone flying down a steep incline wearing a full-face helmet, leather suit, gloves, and other protective gear, fighting for position against three fellow racers, you might think these competitors are from another planet. Leaning forward in a low tuck position, racers can hit speeds of 80, 90, or even 100 kilometres an hour. Going from a casual rider to a downhill competitor requires a lot of training. Experience counts and there is no way to become an expert overnight.

Apprentice to master

Max Odráška, an undergraduate at Charles University's Faculty of Social Sciences, says the more you ride, the faster you'll learn. At least, that's the way he did it. He got his first longboard ten years ago – when he was just 13.

"I learned quickly because I really devoted a lot of time to longboarding. For me, I finally had my own world and a space in my life I could develop without my parents and with my friends. I also skated alone a lot, because I wanted to ride more often. But usually it is a very social sport and it is more fun and safer to ride with your friends."

When he first started, Max says, he wasn't interested in speed or downhill at all.

"I was happy cruising on the board in the park and just going for 'chill' rides and that was enough."

Eventually, he was inspired by videos of more experienced riders and began to learn slides. Foot braking, using the sole of one's shoe to slow down on a hill and slides (where riders shift weight on the board to their front leg and kick out with the back leg to cause the board to slide sideways) are two ways of managing speed, whether slowing down or coming to a full stop. In order to graduate to steeper runs, riders should preferably master both. As a rule of thumb, a rider should always feel in control. Max was a quick study and because he was so devoted, it was only a matter of time before he tried downhill as well.

"I went to an event where there was a fairly 'slow' downhill and it was pretty amazing; something like 12 minutes of riding with friends, communicating all the way down."

Speed

Max was hooked: downhill speeds were something new but also more dangerous. He admits he has always been naturally cautious so he took things slowly to build his confidence. Today, he credits the sport with helping him loosen up: "I think longboarding really helped me learn to take greater risks, both on the board and in life."

At 23, he is a familiar face on the Czech downhill scene, recognised for his crisp slides and riding style.

"Do I ever get afraid?" he thinks for a second, then replies: "Some runs on Tenerife are still pretty scary and there are all those cactuses around! Slides are crucial when you are learning. Once you know how to stop, you build confidence and you can improve. But even now there are times when it can be scary and you just have to suffer through it. There was one hill on Tenrife that was top speed, really long and straight on the way down. When you are going 90 kilometres an hour you have to hold your tuck and just hope it will end soon. You are trying not to move and trying not to upset the board, because even the slightest movement can cause deadly speed wobble. When that happens, the board just disappears from underneath you. You are without your board! And the board is your friend!"

In races, where four downhillers go all out to get to the bottom first, it is common to ask fellow racers ahead of time about their braking styles, to anticipate how they will behave on the road – to avoid taking each other down. Sometimes, though, it's unavoidable, Max admits.

There are times when you are trying not to move and trying not to upset the board, because even the slightest movement can cause deadly speed wobble.

Valérie in action, photo by @duckvaderphoto

"In racing, I have fallen a few times and most falls come in the turns. A lot depends on how you brake and sometimes you don't brake enough. It has happened that I collided or was taken down from behind."

Competition in the time of Covid

In the Czech Republic, Max Odráška regularly competes in the Kozákov Challenge, a World Cup event that takes place annually at the famous Kozákov hill in Český ráj (Bohemian Paradise). The race attracts competitors from all around the world; anybody who is anybody in Czech downhill will also be familiar with this mecca of Czech longboarding. Like other competitors, Max was looking forward to the 2020 season but everything came to a halt. Covid-19 saw all sports including downhill put on hold. As a student of communications, marketing and public relations at Charles University, he, like his peers, had to adjust to distance learning at the university.

"I do think the university did a good job with distance learning. I have a comparison, because in addition I am also studying at a vocational school. The difference between the two when it comes to distance learning is quite high. CU organised this much better. The area I am really struggling the most with right now are team projects that are really hard to do at a distance. I only have four courses because I had plenty of time to complete my credits, but the problem is that people are tired and are losing motivation. Every minute you are not in an online meeting now, is a good thing."

Odráška is set on completing his Bachelor's, which he had already hoped to do before Covid struck. Why the backup vocational school? That is an interesting Plan B: in his second year at university, he realised that although he really liked criticism and analysis, for one reason or another he could not see himself ever actually working in advertising. In some ways he enjoys solving problems outside the classroom more.

"I always liked doing things with my hands and seeing the results of my work. In the intellectual fields, I have this huge problem that I always think it could be better and when it comes to manual work, I don't have that feeling. If you are talking about pipes in the wall, it's simple. Plumbing is either done right – or it is not."

Quick fix

The racer gets the same feeling about working as a bike courier, which he has been doing for four years alongside school. Bike delivery in Prague jumped in importance during the Covid crisis when it came to delivering food for so many people working from home, but Max was not new to the job at all. Not surprisingly, in the city the bike and not the board is his favourite form of commute. Prague has many barriers and many cobblestones. The bike, too, tested his technical skills.

Max posed for us at a children's playground by Stromovka Park. The sculptures are by the famous Czech sculptor Olbram Zoubek.

"It used to be," he laughs "that I would try and fix something and it would become more broken. Then, I struggled and if I could get it back to the previous state of broken, I would be happy with that."

Because of the Covid crisis, his job, school and other responsibilities, months went by without any longboarding at all. The great thing about it? You would never be able to tell. Seeing him carve on an incline in Stromovka Park and doing a perfect toeside 180 with ease is, quite simply, inspiring. While the hills in Prague are easy for skilled riders, he does say he was surprised he did not feel rusty. Now he is looking forward to riding more again, although perhaps there is more freestyle in his future, given he has less time and the races themselves are fairly demanding.

"Races are harder to organise and are therefore expensive. The starting fee at Kozákov, for four days ↪

of racing – two days of freeriding, one day of qualification, and one day for the race itself – was around 5,000 crowns. When you think about it, it almost isn't worth it. There are 200 people there and everything takes time, you need the busses to take you back up. For me it just makes greater sense now to take the car and just enjoy riding with friends."

I started with dancing not long after downhill because there were too few hills in Prague and I wanted to ride longboards and still be into it.

Community

A huge part of longboarding (and skateboarding in general) is the community, reinforced at schools, among groups of friends, as well as at a few local stores specialising in boards. As a rider, Max joined Snowpanic – a ski & longboard shop in Prague 7 that boasts a number of top racers and is a magnet for skilled riders as well as newbies looking to buy their first or second boards. Owner Jakub Janoušek, a graduate of the Czech University of Life Sciences, opened the shop in 2009 and has never looked back. Having a team, he says, is important, because it allows racers to share as well as to grow in the sport.

"The great thing about having a team is that it brings all kinds of different people together. When I am thinking about taking on a rider, it has to be someone who I can relate to or feel a rapport. Riding for a team is reciprocal: there is sponsorship, so riders understand they are also representing the team."

The relationship is mostly informal, says Jakub, and racers choose events they want to race in. There is no requirement, nor would it be realistic, to race in every event. Entry fees can get expensive and riders also have other responsibilities, like their studies at uni. Jakub Janoušek again:

"Most of our riders are studying and completing degrees and it's never been a problem to find time for both."

When it comes to team members, everybody's story is a little different. Many study, most love speed and fast hills, and each made it to the team through various nodes within the community. Snowpanic's top women's racer is Valérie Kindlová (maiden name Vitoušová). In 2013, she completed a Master's degree in communications at Charles University and today is a production manager at Czech Radio's current affairs station Český rozhlas Plus.

At 34, she also heads PR at the Czech Gravity Sport Association (CGSA) that oversees all official competitions and longboard events. She is an ambassador of the Longboard Girls Crew and, when it comes to riding, is one of the best. She is the two-time Czech women's downhill champion, winning in the last season that the event was held.

"The first time, in 2017, I won on points and the second time I won was in 2019 when the format had already been changed to a single race."

Speed 2

Like Max Odráška, Valérie has also been longboarding for a decade. In competition, she relies less on slides but instead foot brakes as she "flies" down the hill on a drop-down board. Her board keeps her low to the ground and provides stability even when she hits top speed. Like other riders, Valérie confirms that downhill has risk baked in. You can mitigate danger through strong and smart riding but you can never rule out the unexpected. Not entirely.

"The fastest I have gone is around 80 kilometres per hour. I was always cautious and tried to discover my limits step-by-step. The worst thing that can happen at high speed is wobble, when you are making a transition over pavement surfaces. People don't realise just how difficult that can be and once it happens, you're doomed. Those tend to be the worst kinds of crashes because you can go from a stand-up position to hitting the road. That's why you have leathers, a full helmet, and that is why I use a spine protector and thigh protectors, because it just hurts when you fall."

Injuries are not surprising when it comes to adrenaline sport: both Valérie and Max have been lucky (knock on wood), suffering no fractures although there were concussions or suspected concussions in the past. Usually things go well. Usually, says Valérie, longboarding is perfect.

"From the very first time I saw a longboard I knew I would love it. My parents raised me to do all kinds of sports but I think I would still rank longboarding above the rest. When I first started I just borrowed a board for a day from the shop and – compared to classic skateboards – it felt like a cruise ship: wide and stable and I could go down and carve on small hills the same day."

Dance, dance, dance

With the season cancelled last year and in 2021, Valérie still had options to choose from when it came to riding, namely longboard dancing, a discipline using longer symmetrical boards with just the right amount of concave to allow for all kinds of fluid moves and tricks. In downhill she's an expert, but as a dancer she's still in the learning stage.

"I started with dancing not long after downhill because there were too few hills in Prague and I wanted to ride longboards and still be into it. I still don't have the same feeling as when I race. There, I feel like I am flying. All the moves are connected. But in dancing I am still sort of a newbie. I have to focus on the tricks and often when I am trying to do a combo, I get stuck in the middle because I can't land the trick. It requires more of my concentration and it's obvious I am still learning."

Ur skateboard

Like many longboard riders, Valérie and Max both got into classic skateboarding before they ever heard of longboards. Skateboarding, more common ↪

Have wheels, will travel! Snowpanic owner Jakub Janoušek.

A word of advice for anyone interested in taking it to the next level: when you set out to ride your first hill, start at the bottom and work your way up.

and more popular, requires its own set of skills, repetition and diligence to learn tricks like ollies, kickflips, manuals or grinds. Valérie laughs and is unvarnished in describing her original skateboard skills as well as the reason she stopped: "I sucked."

Both activities use a board, but otherwise aren't all that close. A marble square at Prague's Letná Park that used to be home to the world's largest statue of Stalin (a monstrosity demolished in 1962), is now a slightly dilapidated area used mainly for street riding and tricks. Skateboarders stick to Staliňák (Stalin plaza) while longboarders at Letná Park ride on a nearby speed track, weaving among inline skaters, runners, young couples, and parents with children. Do skateboarders consider themselves part of the same hobby as their longboarding counterparts? That is a question that makes Jakub Janoušek laugh:

"Some skateboarders joke that we ride 'wrongboards' – not the right ones. But my feeling is that they're still part of the same world: one board, four wheels, eight bearings. A lot of us started on longboards and moved into skateboarding for something to do in the city. Others started with skateboarding first. Some gave up longboarding entirely in favour of skateboards. But what is important is that you enjoy what you are doing… and have friends to ride with."

Board – not bored

If downhillers are in a category all their own, there also aren't that many of them in the Czech Republic to begin with, somewhere between 80 to 200 core riders who compete in downhill racing or also take part in freeride events, Jakub Janoušek says. You can't get more niche than that. Riders can race for a team and find sponsors, but Max, Jakub and Valérie all agree the sport remains pretty much under the radar. Are there any professional riders? According to Max, pro riders can be counted on one or two hands and none are from the Czech Republic but from countries like the US or Brazil. They are the ones who can eke out a living and attend most or all World Cup races.

When it comes to downhill's popularity (or lack of it), the final nail in the coffin, Max says, is that longboarding is just not that fun as a spectator sport.

"It's like cycling. Lots of people like cycling but don't watch races. At most I'd watch the highlights, otherwise it's really boring."

It makes sense: watching a heat or a final race in person means picking a spot along a mountain asphalt road, flanked by hay bales and protective netting, and waiting for the riders to emerge from around the bend at high speed. "You hope," says Max, "to see something exciting. Maybe somebody falls." That the riders are fast is a given, but if you blink you can miss them. In a second, they are gone and there is no way for attendees to get a sense of progression in the race or the scope of the hill itself. It is like trying to make sense of a story by watching only a few frames from a feature film.

But if it's more fun to do than to watch, Max Odráška says sometimes it makes more sense to just go and freeride, rather than to compete: to get back to basics. Jakub Janoušek agrees there is a lot to be said for going out freeriding. To rediscover, what attracted the rider to the board in the first place.

Summer days

The days of summer are here and with it the promise of lazy afternoons in the sun (with Covid numbers thankfully continuing to drop, at least for now). In the old days, back in the 1970s, now legendary magazines such as SkateBoarder featured pioneer riders dropping into empty pools or skating half-pipes in sunny California. Fast forward 45 years, skateboarding is of course still around. "Skate or die" the famous saying goes. But longboarding has caught on and carved out a niche as well. More people than ever are riding longer planks.

Cruisers, dancing boards, longboards, motorised boards: you'll see any number of those any given day at Letná Park and other parts of the city. Top riders like Valérie and her crew also ride at Letná on occasion while Max sometimes takes the biggest hills down into Stromovka Park (easy for him, Everest for the rest of us).

A word of advice for anyone interested in taking it to the next level: when you set out to ride your first hill, don't make the mistake of starting at the top.

"If you want to go from cruising on pathways to small hills and then steeper runs, there's only one way: to start at the bottom," both Max and Jakub say emphatically. "Start at the bottom and after you have mastered a few turns and have a feel for the board… then go a little higher up the hill, come down and repeat. Bit by bit."

Once you learn how to slide, Jakub says, longboarding is a sport that will "never let you go." Longboarding is so much fun, you'll never want to stop.

Max Odráška is an undergraduate student at the Faculty of Social Sciences at Charles University and is a top competitor in Czech downhill racing. He loves training on Tenerife and once saw a race cancelled in Romania thanks to a bear on the road.

Valérie Kindlová is a Charles University graduate, an ambassador of the Longboard Girls Crew, and two-time Czech women's downhill champion. She works at Český rozhlas Plus in Prague. Valérie owns boards for dancing and racing; her drop-down deck is one of the most recognisable boards ever produced.

The **chief**, the Amazon and the waters of the world

He has joked that a recent Amazon exhibition in Prague's Carolinum came together only by accident, after he came across a forgotten box containing Peru's highest state honour. Back in 2007, Charles University's Bohumír Janský became the first foreigner to receive the honour, which includes the aristocratic title of commander.

STORY BY Marcela Uhlíková PHOTOS BY Hynek Glos

How is life these days on our watery planet?
You know who made the famous observation that the Earth is blue? It was Yuri Gagarin. He only had to orbit the Earth once to see it. I often start my lectures by asking students if they know why. Of course, they know the answer is because of the water. But once, and it's been a couple of years now, my son came home from elementary school and proclaimed "Daddy, I told the teacher it was because the oceans cover more than 70 percent of the surface, but she said it was the clouds that make the planet blue." I had to let that one slide so as not to undercut her authority.

Speaking of seas and oceans, is it true that you almost became a member of the board of the Intergovernmental Oceanographic Commission at UNESCO?
We are the only university in the Czech Republic with a Faculty of Science that systematically covers oceanography, i.e. the physical and chemical phenomena and processes in the oceans as well as the ecology of marine ecosystems. We may not have an ocean, but we do have several oceanographers. It occurred to us to ask why the Czech Republic was not on the Intergovernmental Oceanographic Commission, when large parts of oceans are so-called "international waters" meaning landlubbers are entitled to them too. In 2005, at the UNESCO headquarters, we therefore applied for admission in order to defend the interests of landlocked states.

How did things turn out?
On the recommendation of the representatives of the strongest countries on the Oceanographic Commission, I decided a couple of years later to run for the presidency of that prestigious institution. But my plans were thwarted by our then head of state. Before the vote, I heard that representatives of the island nations of Vanuatu and Kiribati shared the views of our former president, a denier of climate change or that ocean levels were rising. At the same time, they were asking New Zealand and Australia to provide part of their own territory as compensation for part of the flooded atolls, coral islands and reefs. It's unfortunate. We could have been there, and I could have been sitting in Paris today among the seven most important people for the world's oceans (laughs).

Professor Bohumír Janský teaches at the Department of Physical Geography and Geoecology at the Faculty of Science at Charles University. Peru was the destination of his expeditions on three occasions, the first in 1995. He and his team proved that the Amazon River has more than one source, but an area of sources on the northern foot of the Cordillera Chila mountains. The Peruvian government awarded him a gold medal of distinction and a title of nobility for his research and findings about the Amazon River.

You hold the position of president elsewhere: you are the president of the Czech Ibero-American Society.
I took over from the late Jan Kopecký, the former ambassador of the Czech Republic in Argentina, Uruguay, Peru and Bolivia. By the way, this is a territory that our politicians unfortunately pay little attention to. When he was the minister of foreign affairs, Karel Schwarzenberg closed five embassies in Latin America even though "Czechoslovakia" still has a great reputation in this part of the world and the opportunities for investment there are immense. Czech scientists are highly regarded in the Andean countries.

Did the discovery of the sources of the Amazon contribute to how Czech science is viewed?
Definitely. They still greatly appreciate it when someone discovers the source of a stream for them *(laughs)*, in this case the largest river in the world. Tell me, who in Europe would give you state honours for discovering such a source? In 2007, I was the first foreigner to receive something like that ↪

in Peru. If only for that piece of gold they hung around my neck, I now have to be active there for the rest of my life.

Are you?
We'd like to participate in the modernisation of the hydrometeorological service there: to complete a network of stations using connections to mobile operators or satellites to gain an overview of the local climate. Since November 2016, we've had a prototype station that transmits current data once every four hours to our server via satellite. Until the Americans built a weather station on Mount Everest, ours was the highest in the world – at 5,300 meters above sea level. My view is that science can be big business and can become a gateway for our companies. It's great that geography at the Faculty of Science has been ranked among the 70 best universities in the world, but we must also be involved in applied science – and be beneficial to society.

What is something we can offer?
In April 2019, I had the opportunity to travel with a government delegation to South America, and I don't think it will take much to get us back to where we once were. Two Czech companies already produce drinking water for indigenous people in the rainforest, where the soil and water were degraded by the mercury used in illegal gold mining. That left behind a hundred thousand hectares of dead rainforest.

Wastewater treatment plants are another possibility for cooperation; around 85 percent of developing countries do not treat their waste. Our companies are able to offer the most advanced technologies because they are among the top in the field in Europe. Here's an idea: I would like to create a project office under the auspices of Charles University which would launch projects to revitalise water systems as part of its secondary economic activity. It is in the area of water that we could truly flourish.

You're working on water and drought on several fronts.
Two years ago I was delegated by the university to the National Drought Coalition, where the prime minister and ministers invited academics for the first time: I was invited along with Petr Sklenička, the rector of the Czech University of Life Sciences, and Miroslav Trnka of Mendel University in Brno. Our task is to create a vision of how water should be handled. Drought is also the central theme of a six-year grant from the Technology Agency of the Czech Republic, which is dominated by large institutes.

Drought was also one of the topics of the *Česko! A jak dál?* public debate series which came from an initiative by Rector Tomáš Zima. It would be great if we were able to educate and train young people as part of these events.

I would like to focus more rigorously on popularising science and to use the activities of the students such as those in the Hydrant student association, who produce interesting videos in the field of surface and groundwater – such as how flows are measured and how snow is examined. I am trying to spread public awareness.

You worked closely with students when you were looking for the sources of the Amazon.
Twelve students who travelled with me on the first expedition in 1995, which covered than 6,000 kilometers and went across all natural regions of Peru. Many of them set an altitude record with an ascent at 6,000 metres, we crossed Lake Titicaca from Peru to Bolivia, we sailed wild rivers in Amazonia, while sailing through the Manu National Park with indigenous accompaniment we passed predatory caimans, we saw flocks of Ara macaws, and we spent two weeks in absolutely untouched nature in a rainforest, where two as yet uncontacted indigenous groups live… Experiences like these unite you for life. When I meet up with those guys today, they still call me by my nickname. *Náčelník*, meaning chief.

Could the Amazon lose its status as the longest river in the world?
It probably won't lose its status, but things can change. Now, at a time of climate change, sources are changing as well. There is even a chance that our sources may be longer than we originally measured. We discovered a small lake full of glacial melt water 500 metres up. I would like to experiment by adding food colouring to the lake to see if it makes it to the main spring below through a crack in the rock. Positive confirmation could prove that the source of the Amazon was even higher – at an altitude of 5,550 metres.

Otherwise, we have noticed frequent mentions that the longest river in the world is the Nile in Africa. Perhaps if someone completely independent were to take up the satellite measurement of both rivers that could change things… Until then, I claim that "our" Amazon, with a length of 7,062 kilometres, is 300 kilometres longer.

Lake Baikal is another lifelong fascination of yours. Why?
In my opinion it is the most beautiful lake in the world. There's nothing like it! I spent a total of three years there during the communist period. For example, as part of an international team of hydrologists for the Limnological Institute of the Siberian Branch of the Russian Academy of Sciences, I measured the flows of all 336 rivers that go into Lake Baikal. I visited hot springs all around the lake's banks, two glaciers and the oldest national park in Russia. And imagine – it was founded by a Czech – Zenon Francevič Svatoš, from Luž, near Chrudim. There is a huge monument to him there: he saved the black sable from extinction at Baikal in 1911 when he started raising specimens and returning them to the wild.

I taught at Irkutsk State University and also illegally studied in the university library: with handheld and head-mounted flashlights I searched for traces of the Czechoslovak Legion around Baikal. I wanted my book *Baikal – The Pearl of Siberia* (1989) to introduce readers both to the deepest lake and the largest reservoir of drinking water in the world, but there was also meant to be part devoted to the Czechoslovak Legion. It took a year for the book to be published, and the chapter on the Legion was cut. I would like to see it updated and complete.

Tell me, who in Europe would give you state honours for discovering such a source? In 2007, I was the first foreigner to receive something like that in Peru.

Let's drop anchor for a moment in the Carolinum in Prague.
Our exhibition was the result of work not only in discovering its sources over three expeditions, but it also shows what we're doing in Peru now and how we're trying to research the impact of climate change on nature and civilisation. For thousands of years, people in villages have drunk water that flowed from glaciers. But what will they drink when the glaciers disappear? In the 30 years we've been going there, the glaciers in the headwaters of the Amazon at the northern foot of the Cordillera Chila have disappeared completely. And it's no different in many other places among the great mountains of the world.

What can be done?
It opens up opportunities for developed nations to offer assistance and expertise. We participated in the design of a dam at 4,100 meters above sea level that will connect to terrace fields in the Colca canyon that were built in the 12th century. These are effects that must be taken deadly seriously. If we don't do something today, it might be too late. Even in our homeland, the supply of drinking water is a serious problem. Once the Covid-19 pandemic ends, we will have to come back to water as an important topic.

You've devoted an exhibition to the Queen of Rivers, and you're preparing a tribute to a lake that holds a special place in your heart in the spring…
(slightly nostalgic) Mladotice Lake! It is the only one in the Czech Republic, and even in all of Central Europe, to have been formed by a landslide. At the time, in 1872, the largest flood in history took place in the Berounka river basin, claiming 300 victims. More than 30 hectares of slope dammed up the valley. I myself wrote more than 30 articles on it; news of the lake was even reported in a number of international magazines. My plan is to introduce an educational trail leading around Mladotice Lake.

The Czechs made **goulash** their own

If you understand Czech and are interested in Czech cuisine, you will want to look up the popular internet series *Zmlsané dějiny* co-hosted by historian Martin Franc. Franc, who teaches at Charles University, delights in debunking culinary myths but also gives credit where it is historically due.

STORY BY Jan Velinger
PHOTO BY Vladimír Šigut

How did the internet series come together?
The series was the brainchild of the highly respected chef Roman Vaněk who is a well-known Czech personality, who has authored many cookbooks and heads a prestigious cooking school in Prague where they teach both professionals and members of the public. We used to have a show together on the public broadcaster Czech Radio, where we looked at culinary history based on historic menus he has in his collection. The aim of this series is similar: to look at different aspects of Czech culinary history.

The key, it seems, is to have a format that is both educational and entertaining.
Absolutely. We always aimed for this show, and the ones before it, to be for a regular audience. We wanted to look at all kinds of gastronomical questions and to tackle some common myths about Czech cuisine. For it to be successful, it has to be interesting.

Your handle or nickname in the show is *Docent Jídlo [Editor's note: In English, he would be Professor Food although "docent" technically means associate professor]*. Do fans recognise you on the street?
(laughs) No, no, no, that doesn't happen. What does happen is that I get many emails from people asking questions about food history and that is something I enjoy. I appreciate the questions and being able to respond.

The series comes in several versions – there is a lite version as well, a shorter format for when viewers are on the go. For example, the goulash episode.
Goulash is an interesting dish because it is buried by all kinds of misinformation: there is a misconception that the dish is steeped in time, going all the way back to the Middle Ages. But in order for it to be goulash as we understand it, it required a key ingredient first: paprika. And paprika was unknown in Europe before the discovery of America.

Goulash is also a very popular traditional dish in the Czech Republic, served at restaurants and at home, so people consider it a Czech specialty. But goulash is Hungarian. On the other hand, Czechs contributed to its popularity here and in Central Europe, playing a very important role: the first recipe for goulash as we know it here, as our neighbours know it, was published in 1819 in the *Hospodářská pražská kuchařka* cookbook in Czech and German editions. The latter edition was the first-ever recipe for goulash in German and consequently it spread to other German-speaking countries. The fact is we had a big impact on goulash as it is served in Central Europe. By comparison, Hungarian goulash is considerably spicier.

Is there such a thing as a quintessential national dish? A Czech national dish?
I am not a fan of the concept: recipes spread very quickly and cuisine is not something that is set in stone, unchanging. Cuisine is something that is constantly evolving. In the Middle Ages or after the 15th century, the national dish would have been peas. In the 19th century, it was carp in black sauce and roast goose. Later still, plum dumplings were considered the national dish and it was only at the end of the 19th century that roast pork with dumplings and sauerkraut symbolically took the crown. There is of course nothing wrong with a nation considering a particular recipe or dish its own, that is a part of cultural identity. What is problematic is trying to draw a line and saying it is solely ours. That's just not how it is.

You touched upon this in an interview with Czech Radio, where you discussed national cuisine as "a construct". An historic construct built to boost identity as well as to promote emerging tourism...
That's right: the second half of the 19th century was one of national awakening and nationalism and all parts of the national culture, including gastronomy, were affected. That is hardly true of only us: the Hungarians had it with their food specialties, the Austrians, the same is true of Scandinavia. In short, it was a common process throughout Europe. And one reason why plum dumplings, which were far closer to an authentic Czech food or recipe than anything else, failed to remain at the top of the list, is because they are harder to prepare – which is riskier in restaurants – and mainly because you can't eat them together with beer. So plum dumplings were basically dethroned: any visitor from abroad wanting to try the Czech national dish needed something they could wash down with a great mug of beer and that was roast pork – *knedlo vepřo zelo*.

Goulash is also a very popular traditional dish in the Czech Republic, served at restaurants and at home, so people consider it a Czech specialty. But goulash is Hungarian.

Do you have a preference when it comes to Czech cuisine?
I had to think about this question a lot: dumplings aren't really my thing. I like classic regional foods here such as *bramborák* (potato pancakes), *vdolky* (similar to muffins), or pancakes. What I despise are legumes of any kind – so historic Czech peas wouldn't have been for me!

As an historian, are there any "holy grails" you are chasing? Lost recipes or otherwise?
One of the big topics now is the origin of breaded fried cheese or *smažený sýr*. That is something that became popular long after WWII and is seen as also being typically Czech. It is a meal closely tied to the communist period from 1948 – 1989, with all the decisions the communists took about foodstuffs and gastronomy from importing, pricing, and nourishment. There were two reasons it was always popular: one, it was pre-prepared, so even unskilled restaurant personnel could make it without messing up and second, it was quick and fast to make even at home. The ingredients were also cheap, as under communism, the dairy industry was heavily subsidised. Fried cheese was considerably cheaper than pork wiener schnitzel.

One aspect I came across fairly recently, a third impulse behind its popularity, was a drive in the first half of the 1960s - when there were meat shortages in Czechoslovakia – for non-meat alternatives. At the time, restaurants had to have meat-free days once a week and that boosted the popularity of fried cheese. It went from being a starter to the main course.

Associate Professor Martin Franc teaches Master's students at Charles University and is also based at the Masaryk Institute and Archive of the Czech Academy of Sciences. He has conducted extensive research into historic recipes and cuisine as well as the communist period in the former Czechoslovakia from 1948 – 1989. Besides his academic work, Franc is dedicated to popularising history, which he does as an amicable co-host in the online series *Zmlsané dějiny* (*Tasty History* or *Hungry for History*).

Education **outside** the classroom

Tomáš Vokáč completed a Ph.D. at Charles University in 2012, focusing on language in modern French theatre. Over the years, he has held top posts in management and – for the last five or so – has been the executive director of The Duke of Edinburgh's International Award Czech Republic (DofE). In our interview, he told us about his studies, his current job and the famous programme founded by Prince Philip.

STORY BY Jan Velinger PHOTOS BY Vladimír Šigut, Shutterstock

How did you find university?
My parents wanted me to be a doctor or a lawyer but I was very interested in arts & culture and theatre in particular. I was one of 12 people accepted out of around 200 at the Department of Theatre Studies at the Faculty of Arts in 1998. The first three years, the area of study was quite broad and we covered everything from the history of theatre to Czech theatre and critical theory.

I was always very interested in French theatre. My thesis was about modern French drama, specifically the work of two playwrights, Valère Novarina and Xavier Duringer. It was about mainly about the language they used and the deconstruction of language, including whether it was transferable to an eastern European environment. It was quite successful: I was nominated for the Jan Palach Award and I received the first prize in the Václav Königsmark awards, which is a competition for theatre studies students and Ph.D. students.

So it was natural to pursue a Ph.D. but it was a big decision because I already had two children at the time and working on a Ph.D. is very time-consuming. Then, in 2010, I became the academic director at the largest educational private company in the Czech Republic, managing a team of 500 teachers, senior teachers, and methodologists. It was a kind of funny and tough period for me.

We had a participant in Příbram who took up swimming every day and her mentor suggested she try something more than the local pool and after one year, she swam across the English Channel!

You went into education but the longest job you have held is the one you have now: executive director of the Duke of Edinburgh's International Award (DofE) in the Czech Republic, which you have headed since 2015. Were the positions similar?
From a management standpoint they are similar since both require great communication, supporting your colleagues, being open and being honest. I was responsible for managing a large number of people and here it is not that different. We have about 20 fulltime employees in the Czech Republic who are managing about 800 people who in this case are not employees but volunteers. Another difference is that the previous job was in the private sector and this is non-profit.

The Duke of Edinburgh's International Award (DofE) was established 65 years ago in Great Britain by Prince Philip. Originally, it was to help young men between secondary school and national service, but it has changed a lot. What inspired him to start such a programme?
When it comes to the programme, the most important influence on Prince Philip was Kurt Hahn, who was one of his teachers when he was at the Salem boarding school in Germany in 1934. Prince Philip was there just two semesters and the two met again at the Gordonstoun boarding school in Scotland after Hahn had escaped from Germany. Hahn was a huge influence because he did not think all learning took place in the classroom and he persuaded Prince Philip and Lord Hunt to begin thinking about the role of non-formal education in an area with a very conservative educational system. Many young boys those days grew up without fathers who had died in the Second World War. That was the reason to show them the need to be active, to be resilient, to be engaged. ↪

A high school in Nymburk, east of Prague, decided, in the volunteering section, to launch a refreshment stand. They used the money they received to help an orphaned boy attend a special basketball camp in Finland. This was a fantastic thing.

One of his most important ideas was that everybody needed to have the same opportunities and that it needed to be non-competitive. He believed in physical activities but he didn't like the idea of competition. He persuaded Prince Philip to run the programme and for it to consist of four sections where participants would [challenge themselves]: volunteering, physical recreation, skills and adventurous journeys. It began in 1956 and two years later was expanded to include girls. For the period, it was very progressive.

In DofE, how much freedom do young people have in choosing challenges?
The activities you want to pursue are solely up to you. Where you'd like to volunteer, which skills you would like to develop, which sports or physical activities you would like to do, or which adventure you want to have, are your choice.

The next important thing is that participants have adult mentors who help them set up clear and measurable goals and help motivate them to complete the DofE Award. There are 1.3 million participants worldwide so our secretary general, John May, always says that we have 1.3 million individual programmes.

What are some examples of goals that participants set for themselves?
One example was a project by a high school in Nymburk, east of Prague, where they decided, in the volunteering section, to have a refreshment stand for products they made at home. They pooled the money they received to help an orphaned boy attend a special basketball camp in Finland. This was a fantastic thing. And it shows how important it is to teach or help young people to start volunteering. People baked something at home, sold the products and donated the money to someone who needed it. That was perfect!

We had a participant in Příbram who took up swimming and her mentor suggested she try something more and after one year, she swam across the English Channel twice! Others do regular sports and that is fine as well. This programme is really for everyone: anyone can take part.

Prince Philip died in April at the age of 99. Will the Duke of Edinburgh's International Award remain a big part of his legacy?
I think so, absolutely. His legacy is much bigger and it is about education and the founding of the programme in 1956. That and the protection of nature [were important topics for him].

Did you ever communicate with him personally?
The person I have the honour to be in contact with and have met several times is HRH Prince Edward, Queen Elizabeth and Prince Philip's youngest son, who began overseeing the award after Prince Philip stepped down as head in 2017. He is very active and is extremely knowledgeable.

In 2017, we organised an international event here for about 85 people from 45 countries and Prince Edward attended for about five days. I can tell you I practiced my speech hundreds of times and of course was a bit nervous. But then it got easier. My colleagues are also very understanding: I am the only member of our special committee who is not from the Commonwealth. Sometimes in our part of the world we are very direct, which may be a reflection of our English-speaking language skills, and in part it's just the way we are (laughs).

As you mentioned, you were a member of the committee marking his legacy and planning celebrations for his 100th birthday on June 10, which he did not live to see. What did you do on the day?
There was a global campaign called the 100 Challenge aimed at integrating more young people, more adults, and more schools to get involved in the programme and in non-formal education. We had of course hoped to celebrate the Duke's birthday [which we did] but also marked the day as the start of a new era in non-formal education.

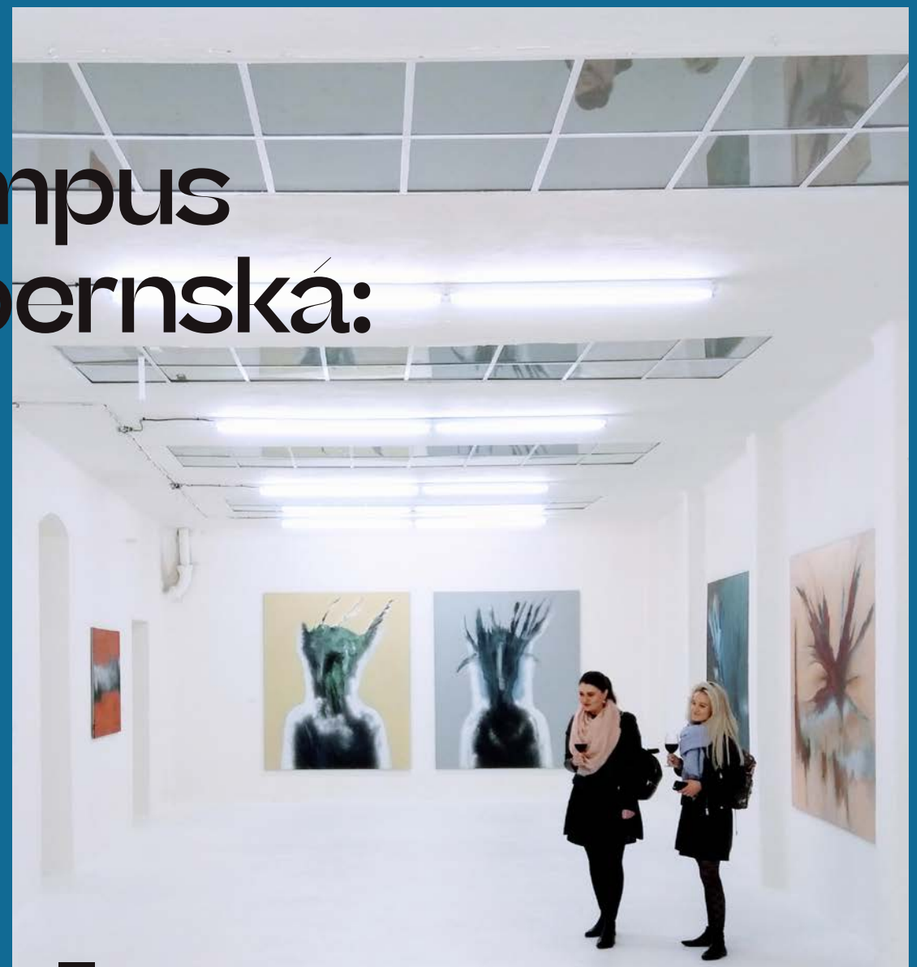
Your job is both rewarding and intense: what do you do when you are not working? Are there any moments when you can focus on other things?
I have three daughters so I spend a lot of time with my family. It's an interesting question because my work is my life and it is an invaluable experience for me to work for an organisation founded and run by the royal family. But what I also do is run. I like running, going to nature very often and skiing is quite an obsession for our family.

I also like meeting and talking with people, which wasn't possible for a while now because of the pandemic.

Tomáš Vokáč, Ph.D., has been working as the Executive Director of The Duke of Edinburgh's International Award in the Czech Republic since 2015. Previously, he worked as the academic director for the largest private educational company in the Czech Republic Edua Group. He graduated from Charles University in Prague and received his Ph.D. degree in 2012.

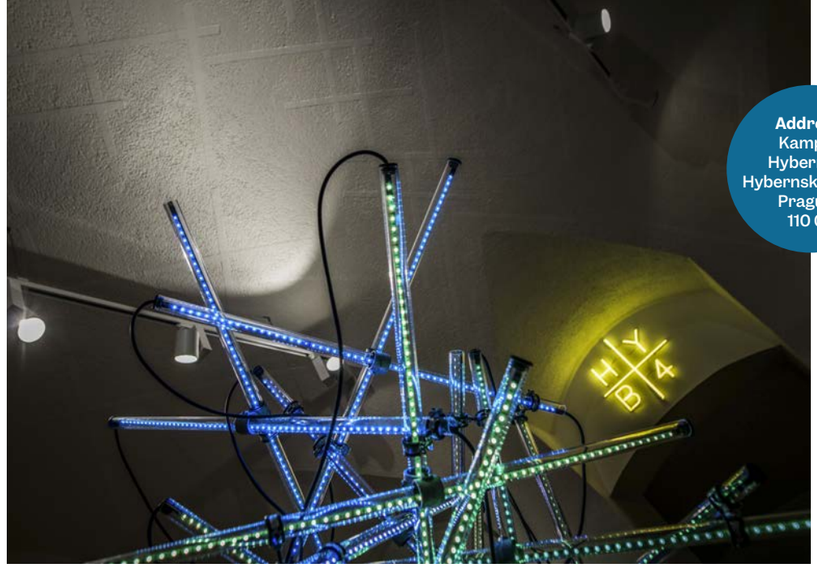
If you would like to learn more about the Duke of Edinburgh's International Award, please scan the QR code.

Kampus Hybernská:



A place for chance meetings

PHOTOS BY **Vladimír Šigut**



Address:
Kampus
Hybernská
Hybernská 998/4
Prague 1
110 00

Kampus Hybernská is a place like no other. It's a café with the best ice cream in town, a secret backyard in the city centre, a music club in an old stable, and a meeting place for students in a labyrinth of rooms. There is a children's corner with a sandbox and a studio where you can find everything from linocut printmaking to modelling with plasticine.

On hand is psychological counselling for students, the Wombat recording studio, an archaeological laboratory, a gallery where stars and students exhibit, a Library of Things where you can borrow everything from a lute to a pram. There is a podcast studio, a screening room, a reading room, and a woodshop where you can repair furniture or make wooden toys. There is also the Institute of Circular Economics, Temora's darkroom, a basement that's about to be turned into a students' club, and, if you're an early bird, a room where you can take morning yoga classes with Hanka.

Kampus Hybernská is exhibitions, concerts, festivals, swaps and bazaars, lectures and debates, happenings, conferences and workshops, student events, theatre and film, drawing in chalk on the asphalt, somersaults and quotes from Latin.

Kampus Hybernská is a coffee maker in the hallway where a physicist can meet a physiotherapist or a philosopher a philatelist – a place for chance meetings and many happy encounters.

It is also, by a stroke of luck, a joint project of Charles University and the City of Prague, serving students and staff and members of the Prague public, a place to "break the ice" and really communicate.

Dr. Jan Bičovský
Member of the Kampus Hybernská management team

Palach remembered

Representatives of the Faculty of Arts, along with students and student organisations, honoured Jan Palach 52 years after his self-immolation protesting the Soviet-led invasion of Czechoslovakia. Attendees wore face masks at a time when the country was under strict lockdown because of the Covid-19 pandemic.

17/1

Life at CU

Charles University dominated this year's Siemens awards recognising outstanding students, Ph.D. students and science and engineering educators. Four laureates in five categories were from Charles University, with the three first prizes for dissertations going to Markéta Bocková (pictured), Libor Šmejkal (both from the Faculty of Mathematics and Physics) and Václav Koucký (The Second Faculty of Medicine).

11/3

Charles University clinched three awards

Nice number? Count on it!

After more than two years of development, a unique Czech beer inspired by the number π (pi) was launched under the slogan "pi-v-o is a Nice Number" (*pivo*, which encapsulates pi, is the Czech word for beer while Nice Number is the name of the new brew). The original recipe originated at the Faculty of Mathematics and Physics and was tweaked by the Research Institute of Brewing and Malting in Prague. Production got underway at Benešov's Ferdinand Brewery, and a non-alcoholic variant is planned.

15/3

Charles University's continuing debate series *Česko! A jak dál?* invited experts to analyse – and in many cases to debunk – disinformation about the coronavirus, vaccines, and the origins of Covid-19. Analyst Alena Zach of Newton Media, Michal Kormaňák of Ipsos and Jan Konvalinka, a biochemist and Charles University's vice-rector for research, discussed how to recognise misinformation and how to prevent its spread.

27/1

Combatting disinformation

Conference looks back on year with Covid

25/3

Charles University held a full day conference looking at how Covid-19 impacted everything from education and health care over the last year, examining what the pandemic had changed and what measures were needed to overcome the crisis. Experts in the field as well as school representatives such as the vice-rectors Radka Wildová and Milena Králíčková, as well as the government's health and education ministers, all took part.

30/3

Covid testing opened to university staff

At the end of March, Charles University secured mobile antigen testing for its staff at 18 different venues. In the first two weeks, more than four thousand people were tested. A centre at Albertov was also opened for testing employees.

1/4

Social media fully in English

Charles University, together with Forum Magazine, launched social network accounts in English, broadening its previous online profile. Facebook, Instagram and LinkedIn were added to Twitter. Forum Magazine is also published online in English with new stories every week (www.ukforum.cz/en).

15/4

Library in Hradec Králové celebrated 75 years

The Medical Library of the Medical School in Hradec Králové was established at the same time as the faculty, but the ceremonial opening did not take place until the following year, on April 15, 1946.

Getting back in shape after the pandemic

Charles University hosted a public webinar with notable guests – including Professor Pavel Kolář – discussing how to get back in shape after months of home office. Experts also discussed the danger of long Covid and how the health care system needed to accommodate patients who had recovered but still suffered long-term effects of the disease.

Pictured: A Bod Pod – a computerised, egg-shaped device that measures weight and volume to determine body density and calculate the user's percentage of body fat.

27/4

University awaits arrival of majestic new pipe organ

During the month of April, the historic pipe organ at Charles University was dismantled to make room for a new instrument produced by the German family company Orgelbau Vleugels. The new instrument will be heard for the first time this year when the annual Christmas concert is held in the Carolinum's Grand Hall.

30/4

Honouring King Charles IV

14/5

Charles University Rector Tomáš Zima, Vice-Rector Jan Royt and Cardinal Dominic Duka laid wreaths at the tomb of Holy Roman Emperor and Czech King Charles IV, who founded the university that bears his name in 1348.

We want **free** elections

Belarusian opposition leader Sviatlana Tsikhanouskaya, who ran in the 2020 presidential election against strong-arm leader Alexander Lukashenko, was in the Czech Republic in June for an official four day visit. The leader was invited to Prague by the speaker of the Senate, Miloš Vystrčil. At a press conference, the Senate leader introduced her as the president-elect and expressed support for the democracy movement in Belarus.

STORY BY Jan Velinger PHOTOS BY Vladimír Šigut

Tsikhanouskaya was herself forced into exile, finding asylum in Lithuania, from where she continues to push for free and fair elections in her home country. Most recently, the country's leader Alexander Lukashenko sparked widespread condemnation with the forced landing of a commercial plane to allow the regime to arrest prominent young dissident Roman Protasevich.

Tsikhanouskaya and her team were also hosted by Charles University's Rector Tomáš Zima and other school representatives: they discussed additional help for Belarusian students and how to promote democracy and change in Belarus.

Forum spoke to the opposition leader, asking first how she saw conditions in Belarus almost a year since the election ended (with Mr Lukashenko holding on to power) especially after recent events.

Sviatlana Tsikhanouskaya:

The regime is escalating violence. Despite the violence, despite all of the victims who are in jail, people are [not giving up]. People are frightened and it is impossible to live in Belarus if you are fighting against the regime, but they are continuing. The movement has gone underground and they are looking for new ways to fight: it can mean leaving coded symbols in different parts of the city, reminding others "we are still here". To remind them that they can put them in jails and torture them, but they are continuing.

Many people were forced to flee the country, but joined up in neighbouring or [nearby countries] like Poland, Lithuania, the Czech Republic. The diaspora is strong and very vocal. They are trying to keep Belarus on the agenda. Our main aim since the very beginning is for new and free elections to be held and nothing has changed. This is the moment when we are putting pressure on the regime so that they understand that there is no other way out. We will fight, the international community is responding, there is no way out except negotiations and dialogue to end the political crisis.

We don't want our country to fall into the deepest economic and tyrannical hole. We are also trying to help civic society, which needs resources to help people. And we are fighting for justice. There is no law in our country now and that is why it is necessary to look for justice abroad.

The world saw the Lukashenko regime respond with impunity, most recently the forced rerouting of a commercial airliner over Belarusian airspace in what was effectively a state-sanctioned hijacking. The forced landing led to the arrest of the journalist Roman Protasevich and his girlfriend and, in a subsequent interview, he was forced to answer questions under extreme duress. What does it say to you that the regime is willing to go to such lengths?

We see a regime that cannot think strategically anymore. What we saw was an emotional step by Lukashenko. He saw a personal enemy in Roman and wanted revenge and wanted to show the whole world. For sure, we knew Roman would be tortured, that he would describe details of his team and the revolution. What the regime doesn't understand is that no one believes it anymore. Even if they were suddenly to tell the truth, no one would believe them. They torture people into confessions, frighten others by threatening families so that people will say what the regime wants. We have no right to judge Roman or people in that situation. What we need to focus on is their release.

How encouraged were you by the international response and what more do you expect from the European Union or the United States?

First, action needs to be taken jointly: the US, EU, Great Britain, Ukraine. When actions are taken jointly they are much stronger. One of the most powerful levers against the regime are economic sanctions. We saw it in the past, nine years ago when only the threat of sanctions led to the release of political prisoners. Lukashenko doesn't understand any other language than the language of power. In 2011, there were about 40 political prisoners and 200 people were on the EU's sanction list. Today, there are around 500 political prisoners and only 80 people on the sanctions list. That's nothing. The EU has to answer the hijacking with very strong sanctions. Targeted economic sanctions affecting Lukashenko's pockets, as well as private sanctions affecting everyone from prosecutors to judges who were involved in past wrongs including the falsification of the election results. We think this is the most powerful form of leverage, together with political isolation. We would like the European Union to provide help with civic society. We understand there are a lot of things going on in the world and it's easy to forget Belarus but we are here in front of your nose, we are your neighbours and we are suffering.

Today you met with representatives of Charles University on university grounds: what role should universities play? A conference about life in Belarus and the problems the country faces, was one proposal discussed, possibly with a broader outreach within the 4EU+ Alliance. In Belarus, some students were persecuted, and thrown out of schools, and people should know about that.

Universities play a huge role in spreading information and students are our motivators. They are the next generation and will determine policy in the future. Universities can help by launching programmes helping students who had to flee the country or who were expelled. To launch online programmes, as well as to be more vocal, holding lectures on conditions in Belarus, to ask students to investigate, to write papers, or even to write to political prisoners as an expression of solidarity.

At the level of the government, I will be meeting with the prime minister as well as the president. We have a lot of gratitude towards the Czech Republic for how the country has helped and ask only for the country to be more vocal and to support fourth and fifth sanction lists and so on. The Czech Republic has been a real example of how a country can act in a difficult situation.

More ideas than could be realised in a **single** lifetime

On 25 April, Ivan M. Havel passed away at the age of 82. It is the same age his father, Václav M., was when he died in 1979. The father had devoted the last years of his life to writing his memoirs – an idea that his sons Ivan and Václav had given him to keep him "busy" and to keep alive memories of a world that must have seemed almost forgotten during the so-called Normalisation period of 1970s Czechoslovakia. Ivan M. Havel needed no such prodding, nor such activity – he had more ideas and work already than a single person could complete in a lifetime.

STORY BY Jana Wolhmuth Markupová PHOTO BY Luboš Wišniewski

First meeting

We first met almost a decade ago, on December 19, 2011. I had been planning my first oral history interview with him for weeks for my forthcoming thesis, when I learned a few hours before that his brother Václav – the former Czech president and playwright – had died.

I expected the meeting to be cancelled and postponed "indefinitely" – fully understandable under the circumstances. How could it be otherwise? To my surprise, however, Ivan M. Havel – or simply IMH as he always signed off – wrote me in the evening to come anyway, that at least we could talk about details and lay the groundwork … From then on, he took me to various meetings and introduced me to many people who had had been part of his brother's life and his own, whose memories might be "useful for my thesis". That week in December set the tone for our entire cooperation and collaborative effort at the time and, without my knowing it, set the direction of my future career.

Our encounters were often surprising and unpredictable, to the point even of setting aside the framework of exact scientific method – and somehow better for it. Without falling into pathos, that too was what Ivan M. Havel was like.

He was born on October 11, 1938, into a highly successful and entrepreneurial family which seemingly predisposed him to a similar future. But his early childhood was already marked by startling historic events, coming into the world only a few weeks after the Munich Agreement, which spelled the tragic end of the First Republic. He lived through the Second World War as a child within the family circle, but the post-war period brought new difficulties. The communist takeover in Czechoslovakia in 1948 meant that the future was dim for the family and the Havel brothers, who were not allowed to study either at high school or at university, but somehow persevered all the same.

Finding a way

Both brothers, with the help of their parents and friends, always found a way, even in difficult circumstances, never giving up and still somehow achieving what they wanted. Ivan M. Havel thus earned both a high school diploma and an engineering degree in evening classes – and in both cases he completed his education himself, not because he had to, but because he wanted to know more. He was driven by the desire for knowledge

While this may sound like a phrase or a cliché, it was the desire for knowledge that was the driving force behind most of his activities: gaining a doctorate at Berkeley, California, in an effort to maintain at least partial contact with international science and research after returning to communist Czechoslovakia in the early 1970s. There were also his diverse intellectual activities in the 1980s, which he had to pursue "outside of work hours" after being expelled from the Czechoslovak Academy of Sciences in connection with his brother Václav's opposition to the regime.

Science, for him, was always crucial, not least after 1990, when doors opened to him in three areas: politics (within Civic Forum), business, and the academic world. Ivan M. Havel, however, put his efforts into the founding of Centre for Theoretical Studies (CTS), a joint site of Charles University and the Czech Academy of Sciences, where he wanted to develop a place for truly transdisciplinary avenues of exploration.

It will come as no surprise that he was also instrumental in the founding of the Faculty of Humanities at Charles University, along with fellow intellectuals Jan Sokol and Zdeněk Pinc. Ivan M. Havel was a man of immense sophistication, inspiration, kindness, who enjoyed connecting people he thought had something to say, and whose sense of often rather sarcastic but also therefore magical humour I miss immensely.

Cooperation

He and I sat together for many hours after the initial meeting those 10 years ago, as I wrote about him, needing to ask questions or make sure that, as a Computer Science layperson, for example, I had correctly understood his dissertation. IMH was immensely generous and eventually my thesis became a monograph (which was subsequently published as a book by Karolinum Press).

After the book was published in the autumn of 2017, we saw each other less. He knew that I was committed to completing my dissertation on his grandfather Hugo Vavrečka, who had had a great influence on him as a child. In October 2020, I got in touch with him again and promised that I would send him a finished text on his grandfather's birthday in February 2021. Not because I thought I had written some "incredible masterpiece" but simply because it provided me with a firm deadline. IMH wrote back that he was very excited to see the results. I kept my promise in February of this year, and was nervous about what he would say. After a first glance, he said he liked what he saw and at the beginning of April I sent him the final work, which he began reading at once. Although he said he was very interested, he warned me that "he read slowly" and that there were many things he had to do.

I looked forward to his impressions, clarifications and notes but sadly it is too late. Many of his friends and colleagues said, similarly, they had been making plans with Ivan in the weeks to come, to meet and have discussions. His sudden death left all of us with a feeling of a work or dialogue unfinished, incomplete. It is this aspect perhaps that is most revealing about the kind of person he was: incredibly active and involved until his last day.

Many of his friends and colleagues said, similarly, they had been making plans with Ivan in the weeks to come, to meet and have discussions. His sudden death left all of us with a feeling of a work or dialogue unfinished and incomplete.

A whale of a project

It was apparent that the complete but darkened skeleton of a small whale at the Museum of Human and Comparative Anatomy (run by the First Faculty of Medicine's Institute of Anatomy) would eventually fall apart. But restorers achieved something remarkable: returning the 350 kilo skeleton – one of only two in the Czech Republic – to its former glory.

STORY BY Marcela Uhlíková PHOTO BY Vladimír Šigut

The exhibit is one-of-a-kind, says Andrej Shbat, who has cared for the museum collection for more than nine years.

What kind of a whale is it, hanging over our heads?
There are two possibilities that are most likely: either it is a Minke whale (*Balaenoptera acutorostrata*) or it is an Antarctic Minke whale (*Balaenoptera bonaerensis*). There is also a possibility it could also be a Bryde's whale. During the restoration process we took samples of both soft and hard tissues and asked colleagues at the Department of Pediatrics and Adolescent Medicine at Karlov to conduct DNA analysis. We expect to know the results in June.

The skeleton wasn't in very good shape, was it?
It is likely that at the time they didn't have the tools for proper conservation; you could say, tongue-in-cheek, that they didn't have a pot "big enough" to simmer the bones as they did with a Fin whale at the National Museum. It appears that they carved as much of the carcass off the bone as they could and hoped any remaining strips would dry out. In the heat of the room, fat began to drip from the exhibit so then the bones had to be conserved. But the result was a blackened skeleton from which fat continued to drip. You can still see the stains on the floor today and they are impossible to remove. Whale blubber was used, after all, to make a sealant used to coat the hull of boats – as a material it was very effective.

Were you able to discover more about how this specimen made it to the Czech lands?
It was probably in the second half of the 19th century but may have arrived even earlier. Unfortunately, part of the university archive was destroyed at the end of WWII so we don't have precise information any longer. The skeleton, like the institute where it is housed, was damaged by broken glass in a blast wave during the bombing of Prague.

How hard was it to restore?
Well, unlike the whale at the National Museum, we took ours apart down to the last bone. But don't ask me how many bones there were – there were enough! Including the whale's spinal discs and the ends of its flippers, which are real. Of course, I had to learn a lot about the whale's anatomy. Previously, some of the ribs were in the wrong order, so we corrected that. We also set the flippers in a more natural position than they had been before… I am certain the whale will now survive for many years to come.

A plaque at Viničná Street 7 in Prague 2 – a building where Einstein taught that is now part of the Faculty of Science at Charles University.