

Number 50

uniNEWS

INVESTIGATE

human relationships

EMPLOY

the tools of technology

PRESERVE

natural resources

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UNIVERSITÉ DE  
NEUCHÂTEL

## **Ten years of research at the University of Neuchâtel**

Special issue: The best of UniNEws 1 to 49



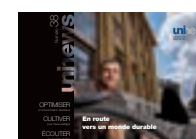
# 50

## Learning from the past to build a better future

In May 2007, the University of Neuchâtel launched the first issue of UniNEws, with its immediately recognisable rectangular format of full-page photos, short texts, and a variety of web links. The idea was that each issue would present part of our academic research in relation to an event — typically, one open to the general public.

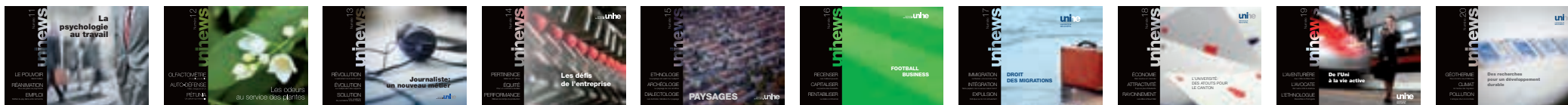
As the publication of this 50th issue coincides with 2018's 'Future Paths' *Dies Academicus*, we invite you to browse through the ten and more years of work which our interdisciplinary and interfaculty teams have undertaken, together building the centres of research at the UniNE's heart.

Throughout these fifty pages, you will see the depth and breadth of the various projects upon which our institution's current research is based, and the range of skills which together account for the strength of its reputation. Be they in the human or natural sciences, in economics or in law, these projects demonstrate the relevance of the ideas discussed by the talented men and women working at the University of Neuchâtel, and how these concerns reflect those of the wider society.



The UniNE has always sought out this connection to the contemporary. In the 2009 edition of UniNEws, which celebrated the University of Neuchâtel's centennial, the then-rector Martine Rahier spoke of 'an intense, and permanent, desire to offer young people in this country the highest quality of higher education, in the economic and cultural context of a dynamic region. No one lives in isolation from history; and no matter how we perceive our history, it is only in welcoming and confronting it that we move forward.'

The fact remains more valid than ever. 'We are at the dawn of a societal transformation, with the 4th industrial, digital and interconnected revolution,' says current rector Kilian Stoffel in the 47th issue of UniNEws, *Building Society 4.0*. 'The tools of this revolution are technological, but its consequences are cultural, legal, economic and social. It will affect the very nature of work and life in society. A university like UniNE, where 80% of the workforce specialises in the humanities and social sciences, is especially well placed to study and prepare for these changes.' And, in so doing, map its own path into the future.



# Fifty pages, twelve themes

This booklet is a showcase for the main research topics presented in previous issues of UniNEws. It contains extracts from existing articles, grouped according to theme. The decision was made to divide this fiftieth edition into two parts, entitled *Life in society* and *Technology and environment*. The first deals with subjects ranging from the origins of language and communication, human relationships in the world of work, museology and art history to the analysis of social processes and the migratory phenomena studied by the *nccr* — *on the move* National Centre of Competence in Research. The second, on the other hand, is dedicated to research on health, the measurement of time, the optimal use of numerical data, the durability of energy resources, the quality of subterranean water, and agriculture. These myriad areas of study show not only the social relevance of the University of Neuchâtel's research, but also its wider influence.

## Part One: Life in society

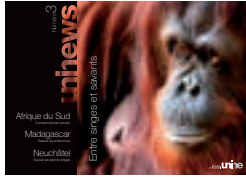
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## Between monkeys and masterminds

UniNews 3, March 2008

### Why study monkeys at Neuchâtel?

‘Since I arrived in 2004, I’ve noticed how many students are interested in monkeys,’ answers Redouan Bshary, professor and head of the Eco-ethology Laboratory. ‘Having written my thesis on red colobus monkeys in the Ivory Coast, my own fascination for this group meant that I could inspire others to study it. Our lab specialises in behavioural studies. In partnership with other universities, we conduct long-term studies on vervet monkeys in South Africa; last year, several Master’s students were working in Uganda and Gabon. These animals look like us, and are usually pretty intelligent. Watching them is fascinating, and it makes us think about our own behaviour.’

### In the field in South Africa

Since 2004, the Loskop Dam Nature Reserve, northeast of Johannesburg, has been home to an international eco-ethology research unit. As part of this project, the University of Neuchâtel is leading several behavioural studies on vervets. The researchers’ patience has paid off: six groups of small monkeys are now comfortable in their presence. This exceptional number allows them to undertake comparative and quantitative studies in a natural setting, something very rare in primatology.

### Culture and traditions

PhD student Erica van de Waal is interested in learning and knowledge transfer among vervets. Her equipment is nothing more than a box with two entry holes, and, inside, a gourmet treat — from a monkey’s point of view. With various experiments, Erica is able to observe hierarchical behaviour, testing the monkeys’ ability to appropriate objects and imitate their congeners.

### Bargaining and cooperation

The laws of the market also exist among monkeys, with most social relationships negotiated by mutual grooming. Student Martina Spinelli compared the behaviour of females from two groups of vervets, before and after giving birth. Her research confirmed that grooming lasts longer when there is a baby around. Using and abusing the law of supply and demand, a mother trades the commodity of her baby for the asset of prolonged grooming.





## The Social Life of Monkeys

UniNews 43, December 2016

### On the lookout for the origins of communication

Chimpanzees, bonobos, baboons, vervets, Diana and titi monkeys: just some of the primate species whose behaviour the University of Neuchâtel is studying, thanks to the Laboratory of Comparative Cognition, directed by Professor Klaus Zuberbühler. His goal is to determine the biological origins of language — vocal as well as gestural — by observing primates in their natural environment.

#### One cry says it all!

Chimpanzees are world leaders in information synthesis. With a single call, they communicate their identity, their age, their social rank and the situation in which they find themselves. Analysis of these calls tells us exactly when each of these pieces of information is provided, and teaches us more about the social links which chimpanzees have with their peers.

#### Sharing food creates commitment

Just like being groomed by a fellow chimpanzee, sharing a meal increases the concentration of oxytocin, a hormone known to reinforce social links. Meals taken together create reliable bonds between chimpanzees, whether or not they belong to the same family.

#### New tools: a family affair!

Making sponges with moss, instead of leaves, is an innovation adopted by some chimpanzees from the Sonso community in Uganda, initially to extract clayey water rich in minerals. In her doctorate, Noémie Lamon demonstrated that this particular skill is principally shared between family members, even though those qualifying as close friends can also benefit from it.

#### Changing tactics according to interlocutor

Bonobos adapt their modes of communication according to the human interlocutor from whom they want to get food. They have the ability to take into account the knowledge they have in common with their peers. With this discovery, post-doctoral student Emilie Genty has revealed yet another feature which brings primates closer to human beings.

**Seduction: the feminine touch**

In periods of fertility, female baboons show signs that leave little to the imagination, like their buttocks swelling to excite the males around them. But it is the particular calls they produce just after mating that are at the heart of Yaëlle Bouquet's research, which aims to work out the link between these vocalisations and the relationships they create with the males of the group.

**Warning: males rely on females!**

Among Diana monkeys, males rely more on the warning signals of their female peers than on their own perceptions. Claudia Stephan, a post-doctoral researcher at the University of Neuchâtel, is the first to demonstrate that predator warnings among monkeys follow different rules according to the individual's sex.

**A flea for a favour**

As is true for most primates, grooming plays a central role in the relationships between vervet monkeys, who live in groups governed by female hierarchies. The doctoral student Christèle Borgeaud has shown that this activity might reduce displays of authority, leading dominant members to tolerate subordinates eating nearby, for example.

**Not just for the ladies**

There are also displays of tolerance between males. In her doctorate, Stéphanie Mercier studies the greeting calls which vervet monkeys make to reduce the aggression levels of dominant males. Her thesis reveals that the dominant males, in turn, express tolerance by raising their tails to reveal their brightly coloured genitals.

**A sense of sequence**

The titi monkeys of Brazil are unique in emitting two types of call, which they arrange in sequences. When danger arises, an individual sends out a sequence, in which the type — and order — of calls communicates the kind of predator encountered, and its location. But do the monkeys who hear these sequences understand their meaning? This is the question that Mélissa Berthet asks in her doctoral thesis.





## Language and communication

UniNews 28, September 2012

### From the world of school to the world of work

The IC-You project analyses the influence of adolescents' and young adults' communication skills on their life trajectories, from school to their entry into the work force. Under the general direction of Simona Pekarek Doehler, Professor of Applied Linguistics at the University of Neuchâtel, IC-You brings together researchers from the Universities of Fribourg and Geneva, as well as the HE-Arc School.

### Mental disorders and language

What happens when health problems affect the ability to tell a story? Marion Fossard, Professor of Speech Therapy, is interested in the dysfunctions caused by certain mental disorders, such as neurodegenerative diseases and schizophrenia. As part of the Discourse and Theory of Mind project, she hopes to contribute to the development of diagnostic and therapeutic methods which might help the victims of these disorders.

### The scientists getting 24,000 texts

Linguistic activity encompasses many forms of written expression. At the end of 2009, Switzerland joined the European SMS4science initiative, inviting its citizens to 'donate their text messages to science' with a public announcement and a competition. Since then, nearly 24,000 messages have been collected, of which 4,500 use French as their basis. The goal is to ascertain the structural characteristics associated with this mode of expression (spelling, syntax and vocabulary), as well as its multilingual dimensions (switching between languages, and the permeability of linguistic boundaries).

### 'Hallo! Voulez vous luncher avec moi hüt'<sup>1</sup>

Text messages are full of borrowings from foreign languages — which is surprising in the context of Switzerland, whose regions are mainly monolingual. Most of the SMS messages collected in Switzerland are not produced by people from bi- or multilingual communities, although these are not formally excluded from the project. For the most part, adding foreign expressions to a text message expresses a demarcation function, allowing the author to emphasise the initiation or termination of communication (greetings, apologies or wishes), or express affection to a recipient.

<sup>1</sup> In this real example of code switching in a text message, Swiss German 'hüt' means today.







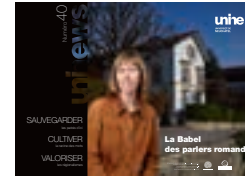
## Today's research, tomorrow's reward UniNews 7, November 2008

### The Free Jura speaks French!

What could be more fundamental to a people's identity than language? This is at the heart of the 'Jura Question', as the sociolinguist Sara Cotelli points out. 'It is striking to see how much language is at the heart of the Jura independence movement's concerns. As early as the sixties, it was used to advance the cause. By defending the idea of a decidedly Francophone people of the Jura, the fear of Germanisation was fuelled. It was a way of rejecting everything relating to Swiss German.'



Photo: Jean-Philippe Daulte



## Francophone Switzerland: a 'Babel' of languages UniNews 40, April 2016

### A project to span the centuries

The Glossary of Dialects of Francophone Switzerland (GPSR) is the custodian of thousands of *patois* words from across French-speaking Switzerland, patiently recorded on yellowing cards collected between 1900 and 1910. Since its founding in 1899, the institute has been dedicated to documenting the region's dialects, enabling their lexicological analysis, and making the data accessible to the public and to academia in the form of a dictionary. Since the publication of its first booklet in 1924, the first six letters of the alphabet have been processed; if it stays on schedule, the dictionary will be finished as early as... 2062.

### Sprinkling fairy dust on the dictionary

The GPSR is launching a series of themed publications entitled 'Mots vedettes' ('Words in the limelight'), a dedicated space for the various *patois*, their history, and their current status. The first of these is on the topic of fairies — until quite recently, central to the imagination of the French-speaking household, and called *faya*, *fèa*, *fayèta* or *fata*. 'Take the example of the place name La Côte-aux-Fées. The term *fée* comes from *faya*; but in *patois*, it also means "sheep",' says Christel Nissille, co-editor of the first of these 'Mots vedettes'. To press home the point, she shows us the commune's flag, which features a corroborating sheep.

### Getting to the roots of plants — and of words

The Botanical Garden of Neuchâtel's *Terre d'outils* exhibition takes us back to the roots of words, the very roots which feed our identity. A tool might seem a mundane place to start; but behind each tool is a plant, and a story relating to the speech of a particular region. Here, a nineteenth century toboggan; there, a Courtepin plough; on the ground, some demijohns; a little further on, a carder for hemp and flax. When first contacting the GPSR, the Botanical Garden wanted to discover the equivalent names in *patois*, and, in so doing, reappraise the heritage of the people who tilled the earth.

### 'Local dialect is intimately linked to everyone's identity'

The first ever Oral Corpus of Swiss French (OFROM) has been online since 2012. The OFROM is the first sound archive to document the French currently spoken in Switzerland, explains Federica Diémoz, director of the Centre for Dialectology and the Study of Regional French, as well as the

Observatory of Swiss French (OFRS). The database today contains some 757,000 words, uttered by 256 speakers, all in open access form.

### **An atlas of Valais dialects, in sounds and images**

The Audiovisual Linguistic Atlas of the Franco-Provençal of Valais (ALAVAL) catalogues in sound and image the various *patois* of the French-speaking part of Valais, listed on UNESCO's 'red list' of endangered languages. Heading the project — started over twenty years ago, and scheduled for completion in 2018 — is Andres Kristol, the former director of the Centre for Dialectology and the Study of Regional French.

### **WhatsApp: a study and symposium**

Linguists from Bern, Leipzig and Neuchâtel have combined forces for the *What's up Switzerland?* project, led by the University of Zurich. How do users write? Do conversations differ according to interlocutors? Since the beginning of 2016, researchers have pored over a wealth of data to answer these questions; from its launch in the summer of 2014, the project — ending in 2019 — has amassed nearly 840,000 messages!



### **The cognitive sciences**

UniNews 24, November 2011

### **The mysteries of knowledge**

While their disciplines may differ, psychologists, linguists, philosophers and biologists are united in their quest to understand the nature of the human spirit. This common interest qualifies them to work at the Cognitive Sciences Centre, which will celebrate its first year of study with an international conference in January 2012. Equally new is the Master's degree in cognitive sciences, to follow.

### **Masters of persuasion**

'We tend to cling to our beliefs, even in the face of claims to the contrary,' says Louis de Saussure, professor at the Institute of Language and Communication Sciences. 'Researchers have proven that changing your mind takes more energy than sticking to your guns. In the plebiscite on minarets, for example, voters did not respond directly to the question posed, but instead to a presupposition — namely, that minarets could start popping up in my district, in my village, quite haphazardly, as a prelude to a sort of invasion that ought to be contained before it can do any damage.'





### **Mankind: the most peculiar of animals**

'Many mechanisms at play in animal cognition are also found among humans,' says Fabrice Clément, a professor trained in social science, philosophy of the mind and developmental psychology. 'The Cognitive Sciences Centre we have started, Louis de Saussure and I, brings together researchers from disciplines as varied as biology, psychology and sociology to study the workings of cognition and communication. The biologists are trying to establish the basic mechanisms, while the sociologists look at higher-level processes, such as culture and collective beliefs.'

### **Why are we always saying 'OK'?**

One of the research topics of Adrian Bangerter, professor at the Institute of Occupational and Organisational Psychology, involves identifying and analysing the tiny signals which allow several people to coordinate their efforts towards a common goal, like assembling flat-pack furniture. 'We often use the "OK" marker before starting an action, or when completing one. It's a way to show a teammate where you are in the process of the task.'

### **Not even kids believe everything...**

'Careful what you say! Kids believe everything you tell them.' We have all been warned by someone convinced that toddlers are infinitely credulous; but that isn't true, says developmental psychologist Nathalie Terrier. She researches the acquisition of knowledge among children using external testimony; and her inquiry into the magical — often sceptical — world of childhood is unafraid of demolishing our prejudices.



### Why literature?

UniNews 5, September 2008

#### One for all... and all for one!

French and Francophone; Italian and German; Spanish and Spanish-American; English and American; Classical and Medieval. In the autumn of 2007, each of these bodies of literature contributed to the University of Neuchâtel's Master's degree in Literatures — note the plural, no small addition in this case. Teachers and researchers joined forces to create this programme, which provides a view of literary activity that is both global and diverse.

#### An openness to the world

It is in such a spirit of openness that the House of Literatures (*Maison des Littératures*, MALIT) was set up, to facilitate the Master's degree. Uniting five institutes linked to the bodies of literature above, MALIT showcases researchers' work by organising symposia, film screenings, conferences, literary salons and other public events.



### Museology today

UniNews 8, January 2009

#### Neuchâtel: a skills centre

Since October 2008, the University of Neuchâtel's Institute of Art History and Museology (IHAM), created in 1975, has offered a new Master's degree in Museum Studies, with Professors Pierre Alain Mariaux and Pascal Griener behind the project. Facilitated by exchange agreements with the Louvre School, along with the universities of Fribourg, Lausanne and Geneva, this course addresses the absence of a centralised, standardised programme for those wishing to work in the world of museums and heritage in general.

'This is an unprecedented programme, the only one — to my knowledge — supported by ICOM (the International Council of Museums), which is something of a hallmark,' says Pierre Alain Mariaux. 'It's also an "open" museology programme. Entry into the Master's degree is granted by discipline, so a discipline can be supported by museology, or museology can be supported by a discipline. This creates a much clearer vision of the professional direction which the future museologist will take.'



## University and museums: knowledge in unison

UniNews 30, April 2013

### A multitude of museums

As well as the fact that the UniNE offers an exclusive Master's degree in Museum Studies, a number of factors contribute to Neuchâtel's exceptional dynamic in museology — not least the Institute of Ethnology's geographical proximity to the Museum of Ethnology (MEN) and the Institute of Archeology with its *Laténium*, the unique links between the Faculty of Science, the Botanical Garden and the Natural History Museum (MHNN), and those between the Museum of Art and History (MAHN) and the Institutes of History and Art History and Museology.

### A closer relationship with the Louvre School

In the autumn of 2012, a new convention was signed with the Louvre School, hailed by Pierre Alain Mariaux as 'a wonderful opportunity for our students'. A Master's-level Louvre School seminar is offered in an intensive one-week course, with ten students coming from Paris to take part. Conversely, ten places on a study programme in the French capital city are provided to Neuchâtel students, allowing them to take in its great museums. In addition to this are individual exchange programmes, lasting for a semester or a year. And last but not least, a seminar given by Neuchâtel teachers is newly on offer to PhD students in Paris.

### The herbarium: an archive with offshoots

Herbarium director Jason Grant and Charles Andrès, Assistant Professor in Biology and president of Wikimedia CH (which financed the operation), have together organised the digitisation of the first 70,000 mounts from the UniNE herbarium. 'The three-month pilot project to create a database of Swiss samples was so successful,' adds Jason Grant, 'that we put in a request for a research assistant. Our herbarium is brimming with samples of cultural and scientific significance — not just at a Swiss level, but worldwide.'

## Museums and the UniNE: a beautiful dynamic

The relationship between Pascal Griener and the UniNE's Master's degree in Museum Studies speaks of a real passion. 'The reputation of Neuchâtel's museum sector has earned us so many wonderful opportunities,' he says. These words, however, come with the proviso that 'philanthropy is slipping away from the arts and museums, towards other causes. Museums' resources will start to change, and for the worse, if we don't know how to defend museums' social mission. The internet, digital... we have to make the transition towards education with more ways in. There is no such thing as a museum without an IT platform anymore. It's how you bring in different audiences, like children and teenagers.'





Photo: BPUN/Gaël Osowiecki



## Rousseau in Neuchâtel

UniNews 26, April 2012

### Rousseau: New avenues

Jean-Jacques Rousseau was born on June 28, 1712. Three hundred years later, Neuchâtel chose the original angle of botany to celebrate not only the birth of this great man but also the 250-year anniversary of his arrival in Switzerland. It was during his exile in Neuchâtel that Rousseau discovered the discipline, one he would practice until his death. *Rousseau: New avenues* will last the entire year, and features a number of events in which the University of Neuchâtel is actively participating.

### Botanist and philosopher of the plant kingdom

In 1762, Rousseau took refuge in Môtiers, in the Val-de-Travers, only remaining in the area until 1765. However, these three short years were enough to inspire in him a true love of botany, leading him to befriend Doctor Jean-Antoine d'Ivernois from Neuchâtel, and the surgeon Abraham Gagnebin from La Ferrière in the Jura, both of whom encouraged his passion for anything bearing leaves, roots or petals.

### A hostility to botanical utilitarianism

Though loyal to Linnaeus, Rousseau developed his own naturalistic philosophy. His hostility to the utilitarian approach to botany was marked; the first words in his *Dictionnaire des termes d'usage en botanique* declared that 'botany's original sin is that it is seen, from its very beginnings, as a field of medicine.'

### Contributing to Neuchâtel's herbarium

The large herbarium preserved at Neuchâtel's Public and University Library contains mounts of many different origins. About fifty of these, assembled between 1777 and 1778, turn out to be the work of the philosopher himself. Elegantly arranged on paper, the plants are fixed in place with golden tabs, framed in red ink, with the only annotation being the species' Linnaean designation.



Photo: Guillaume Perret



## **An artist's gift: Catherine Gfeller at the UniNE** UniNews 41, August 2016

### **A former student's gift**

In 2016, the visual artist Catherine Gfeller donated ten colossal photographic compositions to the University of Neuchâtel, to commemorate her years of study there. These tableaux were the result of the carte blanche given to her by the Zentrum Paul Klee (ZPK), which allowed her to mark the tenth anniversary of the institution dedicated to the renowned painter in her own unique way. During 2015, Gfeller — herself from Neuchâtel — produced a dozen artistic creations, mixing photos, videos, installations, performance pieces and soundtracks, to encourage visitors to experience the ZPK and Paul Klee (1879-1940).



## **A start-up called Alphil** UniNews 42, October 2016

### **Twenty years of knowledge**

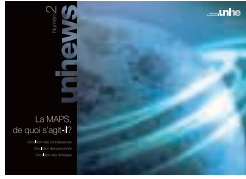
Once upon a time, there was a student by the name of Alain Cortat. One day, just for fun, he decided to publish the drawings of one of his favourite childhood comic authors; and twenty years after their largely unnoticed birth, the Alphil Editions had their own shopfront in Neuchâtel, with a catalogue of 250 books, and thirty works published every year!



## **125 years of the ILCF: Living French at Neuchâtel** UniNews 44, February 2017

### **A bastion of language and culture**

In this year, 2017, the Institute of French Language and Civilisation of the Faculty of Arts and Humanities is celebrating its 125th anniversary. Founded in 1892 — seventeen years before the University itself — the Institute is the foundation for Neuchâtel's superb reputation in French Studies. Nowadays, it welcomes over 400 students every year, hailing from some 60 countries.



## The MAPS, and what it does

UniNews 2, January 2008

The Centre for the Understanding of Social Processes (MAPS) brings together specialists from the Institutes of Ethnology, Geography, Sociology, Psychology and Education, as well as the SFM (Swiss Forum for Migration and Population Studies). Its activities focus on three main themes: the movement of people; the movement of wealth; and the movement of knowledge.

### Back to the city?

Living in the city is once again *en vogue*, and recent years have seen many brownfield sites transformed into residential districts. But these are not for everyone. A survey conducted in Neuchâtel and Zurich has revealed that new buildings — frequently built on brownfield sites in city centres — pull in wealthy households, mindful of the practical and even ecological aspects of city life.

### Pension funds and finance

Did you know that employees' retirement savings benefit Nestlé and Novartis far more than the small businesses in your region? Institute of Sociology researchers have proven that pension funds, though raised in every part of Switzerland, are managed by only a handful of big banks based in Geneva and Zurich. As a result, large publicly listed companies are always first to benefit from such investment funds, while SMEs — considered by the financial giants to be too risky — get shoved to the side.

### The job that dare not speak its name

What do we really know about prostitution? To move beyond moralising judgments, an international conference organised by MAPS hopes to explore and describe the realities of the industry as never before. Despite its legalisation in some parts of the West, the 'oldest profession' still constitutes a shameful and degrading activity. With this as a starting point, the conference organisers intend to open the floor to the ethnographers of prostitution, so that judgment can finally give way to description.







## **The social sciences in action**

UniNews 37, September 2015

### **Social innovations**

A renewed interest in the social sciences casts them as innovative forces, working with civil society to develop new solutions to complex issues which neither the state nor the market alone can solve.

### **The greying population and the need for new answers**

What status do we want seniors to have in our society? How can their daily lives be improved? And how do we create intergenerational solidarity? For Tania Zittoun, professor at the Institute of Psychology and Education, the role of the social sciences is to think differently about 'old age', which impacts on so many areas of life, from senior learning programmes to nursing homes. 'How can seniors continue to learn in a changing environment? We are trying to understand the issues of learning at every different level,' she explains.

### **Committing to sustainable agri-food production**

With the increasing global population and changing dietary habits, the agri-food sector faces many new challenges. How can a burgeoning population be fed without environmental destruction? Leading an SNSF-funded project to investigate these issues, the ethnologist Jérémie Forney sees himself as a social actor playing his own part in the drive to create sustainable agri-food systems.

### **Towards an innovative and democratic dialogue**

The Theatre of Knowledge aims to put knowledge on stage, in order to start a public conversation about current issues. Ola Söderström, Professor at the Institute of Geography and one of the scheme's initiators, sees an opportunity for Neuchâtel to put itself at the heart of the debate in Switzerland. He outlines how such a project should develop with the participation of the cultural and political actors from the region; for him, 'researchers are social actors working on a social stage.'



## Social sciences: capturing the global dynamic

UniNews 49, March 2018

### Ten years of the Master's in Social Sciences

With its 220 students, the Master's in Social Sciences is now the most widely followed of all the University of Neuchâtel's Master's degrees, to the great pride of the Centre for the Understanding of Social Processes (MAPS), the driving force behind it. Born in 2008, this interdisciplinary course — unique within Switzerland — takes its lead from current events, focusing on social inequalities, migration, urbanisation and multiculturalism. This programme, headed by MAPS Director and Professor of Transnational Studies Janine Dahinden, aims to understand the changes in our society from an innovative and interdisciplinary perspective.

### The MAPS in words and numbers

Founded in 2006, the MAPS is an interdisciplinary social science centre unique within Switzerland. It leads a variety of innovative research projects, relying on the synergy between the six institutes which comprise it, and always placing social innovation front and centre.

### The E-waste rush

Every year, thousands of tons of waste composed of electrical and electronic devices — called e-waste — are exported to the developing regions, especially Asia and Africa. Are the destination countries the passive dumping grounds of the 'Great West'? What becomes of used equipment once it arrives? What value can it have for locals? Alice Sala, a PhD student at the Institute of Ethnology, spent two years in Africa's largest computer hardware market, as part of the *e-waste* project directed by ethnologist Ellen Hertz.

### The chicken, the egg, and the morality of markets

To stay *au courant*, we must now consume healthy, organic and ethical produce, a credo which businesses have turned into a niche market. Be it food, cosmetics or textiles, no sector can escape the craze. So how are markets 'moralising'? What is the consumer's role in their development? With his research into the Swiss egg market, Assistant Professor at the Institute of Sociology Philip Balsiger is looking for answers to these new questions.

### Transnational marriages: beyond the cliché

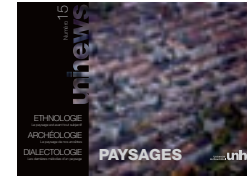
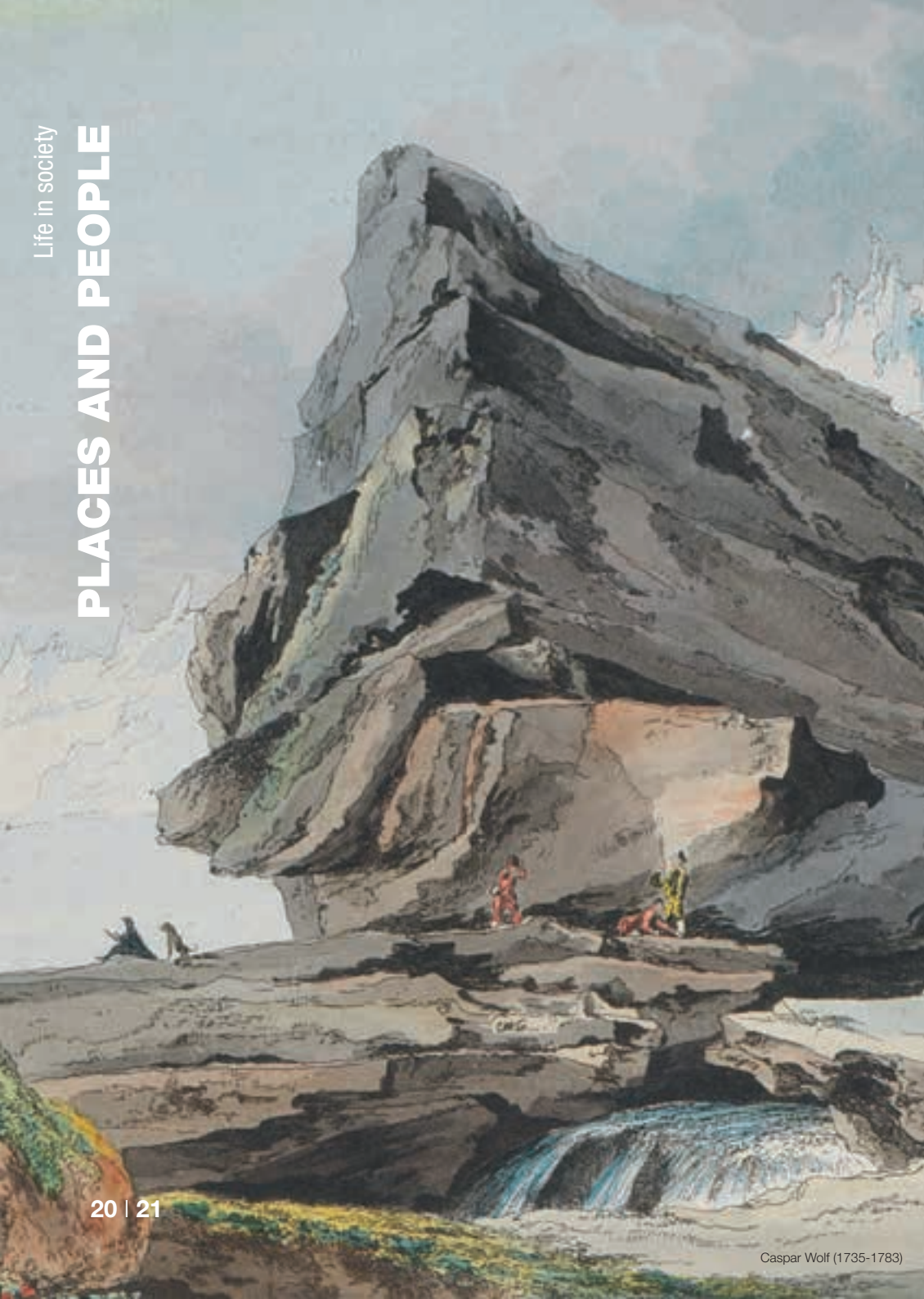
Over the course of three years, Joëlle Moret and Shpresa Jashari, two researchers at the Social Process Studies Laboratory, conducted around thirty biographical interviews with men and women born to migrant parents from Turkey, Kosovo, Sri Lanka, Somalia, Bosnia-Herzegovina, Serbia and Eritrea. The participants were chosen because they picked as a partner someone who came from the same country of origin, and who had lived there until recently. Among the questions put to the interviewees were: how did they meet? What mattered to them when choosing their partners? Why did they decide to marry? And what was their experience of the authorities?

### Education in refugee camps: a closer look

Every year, refugee schools contribute to the education of hundreds of thousands of children from around the world, often in unstable areas. How do these schools work? Which goals do they work towards? How do children in these contexts learn to become future citizens? To answer these questions, a research team went to observe schools for Congolese refugees in Rwanda and Tanzania, under the supervision of anthropologist Marion Fresia and sociocultural psychologist Anne-Nelly Perret-Clermont.



For MAPS Director and Professor of Transnational Studies Janine Dahinden, interdisciplinarity provides students with flexibility and creativity, genuine assets in the professional world.



## Landscapes

UniNews 15, March 2010

### The landscape of chocolate

For 170 years, the landscape of Neuchâtel-Serrières was shaped by the growth of the Suchard company, which had as many as 2,000 employees before it closed its doors in 1990. While remnants of this legacy can still be seen, Suchard is more than the factories of Serrières. The industrial landscape, built to meet the needs of production, stands in contrast to the landscape of an idyllic Switzerland, created by advertisers to drive up sales.

### Revisiting the Alps

Eighteenth century scholars and travellers were not short of opinions on the Alpine landscape. Under Professor Claire Jaquier's supervision, Aurélie Luther examined a large corpus of texts written or published in the seventeenth and eighteenth centuries as part of her thesis at the Institute of Modern French Literature. Her aim was to 'revisit' the traditional distinction between two moments: one in which the Alps were thought of as a terrifying space; the other in which they brought aesthetic delight and scientific appreciation.

### Archaeology

What was the social and natural landscape which constituted our ancestors' living environment? Much of the archaeological research conducted in the canton of Neuchâtel has significant implications for the naturalistic study of the prehistoric environment. One example comes from Marin-Les Piécettes, where a team headed by University of Neuchâtel Professor Matthieu Honegger was able to sketch the first outlines of a village dating back to the 35th century BC.



## Migration law

UniNews 17, September 2010

### Law and the family

Ten years ago, Minh Son Nguyen was the only person in Switzerland to teach migration law on a regular basis. Today, the Migration Law Centre under his direction gathers together many professors actively researching the field, in particular in relation to migrant families, a domain which has substantially evolved since



Photo: Christian Brun

2009. 'For example, when one parent has to leave Switzerland,' he says, 'the Federal Court now considers the best interests of the child. If it turns out that the child is better off in Switzerland, we find a solution so that the foreign parent can stay, too.'

### **Stranger danger**

As the author of a doctoral thesis in social anthropology on the topic of foreigners in closed prisons, Christin Achermann pushes back against the cliché that the majority of foreigners commit a crime as soon as they enter the country. She has conducted a large-scale study into the processes of excluding foreigners within two Swiss prisons.

### **Immigration to Switzerland: a success story**

Etienne Piguet is an expert renowned across the world for his research into migration. According to him, the number of immigrants hosted by Switzerland is comparable to that of Canada or Australia. 'Quantitatively, it is unusual to have taken in such a large number of immigrants, given the country's size. And in terms of consequences, this immigration can reasonably be described as fairly successful, overall.'



### **Alumni: A man called Mossadegh** UniNews 35, March 2015

#### **An exhibition for the Cultural Spring**

From 1910 to 1914, long before becoming Prime Minister of Iran, Mohammad Mossadegh studied at the University of Neuchâtel's Faculty of Law. There, he argued that one could 'devote oneself to study without fearing the distractions of leisure and entertainment,' as he wrote in his memoirs, 'from nine o'clock in the evening, all the inhabitants stay at home.' On graduating, he wrote a doctoral thesis on Wills in Shia Muslim Law. In 2015, the University of Neuchâtel honoured this distinguished Persian with an exhibition, which ran from March 11 to June 21.



## A journey through Cosmopolis

UniNews 21, May 2011

### Opening doors to the world

Cities have always been cosmopolitan, containing people, objects, ideas and ways of life from further afield. With the acceleration of globalisation, this phenomenon shows no signs of abating. But how does it shape contemporary urban life? Are such transformations ultimately interchangeable, or specific to each of the cities in question? As the University of Neuchâtel's contribution to the millennium of Neuchâtel, the *Cosmopolis / Exploring the Globalisation of Cities* exhibition invites you to explore these fascinating questions.

### Three laboratory cities

While many studies have focused on the planet's major economic centres, the 'Cosmopolis' research programme, led by Ola Söderström of the University of Neuchâtel's Institute of Geography, considers the processes of modernisation affecting three of the 'humdrum' cities which grow in the shadow of metropolises. Their main question: why and how did Hanoi, Ouagadougou and Palermo open up to foreign influences?



## On the move : Another View of Migration

UniNews 46, May 2017

### Migration at the heart of Swiss research

Three years ago, the Swiss Confederation conferred the University of Neuchâtel (UniNE) with a National Centre of Competence in Research (NCCR), with funding of CHF 17.2 million, reinforcing the Canton's reputation as a place of expertise in migration, at both national and international levels. The only humanities project to be selected alongside numerous natural science projects, *nccr – on the move*, as it is called, has lived up to its promises.

"We focused our research on three key areas: the economy as the driver for migration and mobility; the Swiss legal framework, including national and supranational laws and agreements; and the societal consequences of these changes."

### Following migration over time

Every year, thousands of migrants arrive in Switzerland, their motivations many and varied. Who are they? Which integration pathways do they follow? How long do they stay in the country? With his team, demographer Philippe Wanner, deputy director of *nccr – on the move*, is investigating the migratory trajectories of foreign populations over time, in partnership with the Federal Statistical Office.

### Recognising religious minorities

What is the place of religious communities in Switzerland? Does recognising them promote their integration, or instead create the risk of community withdrawal? Stefanie Kurt is a lawyer and postdoctoral researcher at *nccr – on the move*, in the Immigration, Citizenship and Federalism group, as well as a researcher at the Swiss Centre of Expertise in Human Rights (SCHR);

she became interested in these questions during her PhD thesis, which compared the twenty-six systems of cantonal laws in force. She argues that Switzerland must now debate the role of religion in society with the communities concerned.

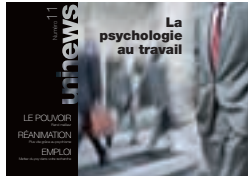
### The integration obstacle course

Getting a C permit, naturalisation, the right to vote and stand for election: as far as integration is concerned, there are significant differences – if not inequalities – which foreigners can experience between cantons, in terms of both laws and procedures. To help those involved in practice and research – as well as migrants themselves – to wade through the quagmire of rules, *nccr – on the move* has developed an online database of all communal, cantonal and federal laws, a tool unique within Switzerland.



Photo: Guillaume Perret

The management of *nccr – on the move* is based in Neuchâtel, and includes Elie Michel (scientific officer), Gianni D'Amato (professor and NCCR director), Joëlle Moret (knowledge transfer officer), Andreas Perret (data manager), Nicole Wichmann (network officer), Alessandro Lazzari (training and gender equality), and Ursula Gugger Suter (communication officer).



## Workplace psychology

UniNews 11, June 2009

### A little light psychology at work

Things happen while we work: discussions; emotions; turf wars. Our modern society, founded on an increasingly dense network of human interaction, cannot do without workplace psychology. Topics as varied as cooperation, communication, recruitment and senior-junior relations all feed into the research led by Neuchâtel's Institute of Occupational and Organisational Psychology (IPTO), a specialty of the University taught nowhere else in French-speaking Switzerland as a subject in its own right.

### Should we still prepare for job interviews?

The University of Neuchâtel's occupational psychologists interviewed recruiters and potential employees one by one, with striking results. Both groups expect fairly similar questions, such as 'what are your strengths?' and 'tell me about your weaknesses'. But what if a job interview is nothing more than playing and replaying the role of the highly motivated candidate, and the dialogue where questions and answers expected by all parties were batted back and forth? It is this possibility which is explored by the team of Professor Adrian Bangerter, IPTO's director.

### Timewasting kills

Professor of Occupational Psychology Franziska Tschan is interested in cardiocirculatory arrests in hospital settings — especially when several people from the same hierarchical level attend the incident. How is a leader chosen as quickly as possible? It is tempting to think that time will necessarily be lost in such events; but, to psychologists' surprise, recorded outcomes are superior when several people are obliged to work together from the beginning of an incident. In fact, this can result in a saving of forty seconds — not to be sniffed at, given that each minute of inactivity decreases a patient's chance of survival by 10%.



## Journalist: a new profession

UniNews 13, October 2009

### The AJM: responding to changes in the media

In September 2008, the first students enrolled at the Academy of Journalism and Media (AJM), an institute created by the University of Neuchâtel to respond to the tectonic shifts which the profession of journalism is experiencing today. To achieve this, the AJM relies on its close cooperative links with the profession, regularly consulting stakeholders in the programme and media professionals, who are also well represented on the committees which determine the new Academy's future direction.

### A pragmatic Master's

In September 2008, Loïc Delacour was one of the first students to embark on a Master's degree in Journalism at the University of Neuchâtel. Next week, he will leave Neuchâtel to participate in a six-week workshop at *Télévision suisse romande*, offering him unique opportunities to get behind the camera, try his hand at lighting and editing, and learn the basics of the interview. The training provided by the AJM includes a variety of practical workshops. 'I took one on international politics in the print media,' he says. 'For a week, I was at the UN, for debates on the Durban Review Conference. I had to write articles on the fly. It was wonderful, being right at the heart of the action.'



Loïc Delacour

Photo: Anita Schlaefli





Photo: Anita Schläefli



## The challenges of business

UniNews 14, February 2010

### A false enemy

'The World Trade Organisation (WTO) is like a notary executing an agreement. The true culprits of the injustices for which it is blamed are the countries negotiating with one another, under the influence of powerful commercial lobbies.' Michel Kostecki, a professor at the Enterprise Institute (IENE), is a specialist in international commerce and marketing; he takes great satisfaction in countering the WTO's detractors, who consider the organisation to be the epitome of capitalism's digressions.

### Getting China on side

Nicolas Hanssens, the winner of the Young Consulting Award 2009, has meticulously analysed the commercial strategies of luxury Swiss watchmakers in China. His Master's thesis, supervised by Michel Kostecki, reveals that the traditional tools of global marketing struggle to seduce the Middle Kingdom's consumers, who fiercely guard their culture despite their love of Western goods, and their newfound wealth.

### From ideology to profit

How has fair trade gone from a niche market to a sales methodology generating healthy profits? Valéry Bezençon's doctorate unpicked the motivations of five companies adopting this commercial strategy to sell their products: a supermarket chain, a fast food multinational, fair trade shops, a local coffee brand, and a well-known clothing manufacturer.



## From UniNE to work

UniNews 19, February 2011

UniNews takes a look at six different career pathways, all taken by women. This issue's release coincides with March 8, International Women's Day.



### From internship to job in a single step

In September 2010, Laurence Bodenmann graduated from the University of Neuchâtel with a degree in Arts and Humanities, specialising in Ethnology, the History of Religious Studies, and Sociology. Since August 2010, she has been working as a research assistant at the Time and Humanity Institute, a research centre linked to the International Watchmaking Museum.



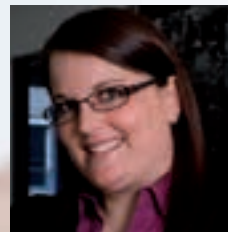
### At the AJM, you learn a profession

In 2010, Sandrine Hochstrasser earned a Master's degree from the Academy of Journalism and Media (AJM), after her degree from the Graduate Institute of International and Development Studies in Geneva in 2008. Since September 2010, she has worked for *Le Temps* newspaper, managing the careers section.



### The law as a means of de-escalation

In 2005, Stephanie Wildhaber concluded her law degree with an internship at Schaller Zen-Ruffinen Junod, the firm which has employed her since March 2008, when she qualified to practise law. For her, a lawyer's first priority is to reconcile two parties, in order to avoid trial. In fact, she is happy to admit a certain aversion to conflict — perhaps less paradoxical than it seems...



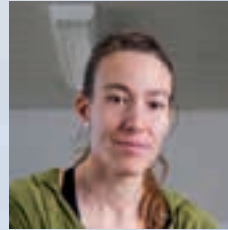
### 'Every morning, I go to work saying "yes!"'

In June 2009, Christel Stadelmann left the University of Neuchâtel with a Bachelor of Arts degree focusing on information and communication sciences and English literature. After a brief foray into the media world, in March 2010 she joined the international company Weber Shandwick, specialists in communication strategies.

Photos: Anita Schläefli

### Teaching: happiness is in the classroom

After studying biology at the University of Neuchâtel, and a few years in the labour market, Odile Hirschy began to teach, finishing her training at the HEP-BEJUNE School of Pedagogy in August 2004. In the autumn of the same year, she delivered her first biology lesson to a class of teenage students.



### Working with Mike Horn: a step into the wild

On leaving university in 2001, with an Economics degree specialising in financial analysis, Caroline Henrioud would never have guessed that her professional skills would throw her into the path of an inveterate adventurer. Since June 2006, she has been the financial manager, event coordinator and — if that were not enough — head of sponsorship management for Mike Horn Sàrl.



### Learning on the go

UniNews 22, July 2011

#### A life of learning lies ahead

For those who want to complement their education with new knowledge — either adding to existing professional skills or embarking on a new career — the University of Neuchâtel offers a wide range of courses, typically taken by people already in work. With the rapid changes in today's professions, it is increasingly vital to keep skills up to date. Subjects on offer include health law, the management of polluted sites, and deep geothermics, to name but three.



Caroline Henrioud,  
far left, beside Mike Horn



## University in the biotech age

UniNews 4, September 2008

### Pinning down the plastoglobule

Only two years ago, an extraordinary discovery rocked the team of Professor Felix Kessler, head of the Plant Physiology Lab: plastoglobules, the lipid droplets present in plant chloroplasts, contribute to the synthesis of a number of vitamins. One example is vitamin E, known for its antioxidant properties, and widely used in cosmetics — particularly in creams which claim to fight the ageing process.

### Protecting intellectual property and access to resources

The pharmaceutical benefits of tropical plants are of more and more interest to Western industries. To prevent the law of the jungle taking hold, legal bases for the protection of resources and human rights in developing countries must be established. One example comes from South Africa, where Daniel Kraus — researcher at the University of Neuchâtel's Institute of Health Law (IDS) — is examining these issues as part of a project co-funded by the Swiss National Science Foundation (SNSF) and the National Research Foundation of South Africa.

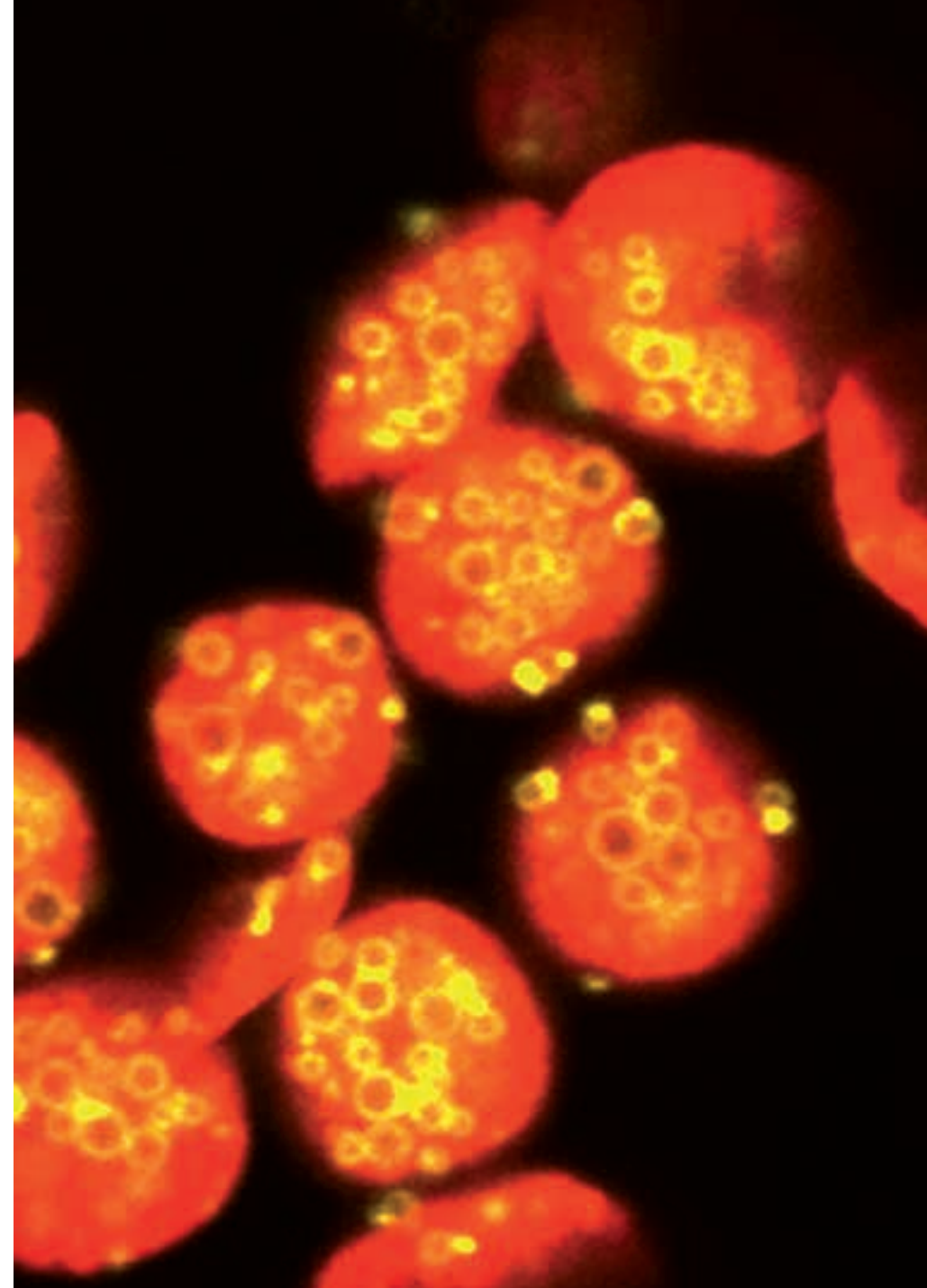


## Today's research, tomorrow's reward

UniNews 7, November 2008

### The fight against overlooked diseases

It is estimated that only 10% of current medical research focuses on diseases affecting developing countries; and yet, these account for 90% of humans with diseases. Among these are malaria, tuberculosis and river blindness. Beatrice Stirner studies the legal measures which could stimulate research and development of pharmaceuticals to treat these overlooked diseases.



Chloroplasts  
(red fluorescence) containing yellow plastoglobules



## The multiple facets of mathematics

UniNews 10, February 2009

### Targeted strikes

New drugs to fight cancer more effectively cannot be administered according to established medical procedures, due to their extremely deleterious side effects. A new technology to deliver active substances in a far more targeted way is currently under development; at the University of Neuchâtel, it is mathematics in the driving seat of this project, which also involves various other scientific domains.



## Skills to share, skills to protect

UniNews 23, August 2011

### A legal dilemma

AIDS, malaria, tuberculosis: just three of the many diseases ravaging the developing countries. There are, of course, drugs to treat them, but these are often too expensive for the disadvantaged people in these regions. So, what to do? For Daniel Kraus, Professor in Innovation Law, a balance must be struck between protecting the technological innovation which is an inherent part of developing medication and providing access to the medication itself.

### Nursing Europe's forests back to health

As a research assistant at the Soil Biology Laboratory led by Professor Edward Mitchell, Lassaâd Belbahri is one of the five coordinators of the ISEFOR project, which aims to ensure the sustainability of European forests. The researcher from Neuchâtel heads a group of experts tracking pests and diseases whose impact is exacerbated by global warming and globalisation. The list includes bacteria, insects and fungi, as well as another category which poses a particular danger to our woodland landscapes, oomycetes. Behind this somewhat impenetrable name lurk a number of well-known pathogens, such as mildew and mould.





Olivier Guillod



Dominique Sprumont



Sabrina Burgat



## Health law: the Institute is twenty years old!

UniNEWS 32, September 2013

Created in 1993 by Professors Olivier Guillod and Dominique Sprumont, the Institute of Health Law (IDS) was the first university centre in Switzerland to be entirely devoted to this field of study. The IDS introduced the first Health Law course of any Swiss university, followed by the first ever Swiss Master's degree in Health Law. The IDS studies various subjects, such as insurance (medical, accident, disability), medication law, patients' rights and medical liability.

### Hospitals: too many fatal errors

Every year, between 1,500 and 2,000 people die in Swiss hospitals as a result of medical errors. That's far too many, worries HLI director Professor Olivier Guillod, who decided to embark on a study of the subject by bringing together associations of doctors, patients and hospital workers to solve this persistent problem. The Swiss National Science Foundation has just granted his project a two-year subsidy of 177,000 francs.

### Patient protection at the heart of the matter

Dominique Sprumont points out a number of dysfunctions when it comes to accessing healthcare in prisons: treatments deemed too expensive, thus withheld from inmates; incapacity status granted by Swiss disability insurance (AI); the substitution of certain drugs for less effective equivalents, to avoid trafficking. The researcher also notes that the same difficulties in protecting the rights of patients and healthcare professionals are encountered in the world of sport, often as a result of anti-doping measures.

### Telemedicine: a commercial relationship

In Switzerland, telemedicine is still a commercial relationship like any other, regulated by the Swiss Code of Obligations. It is defined as direct contact between doctor and patient, often over the phone. As such, the legislation already in place allows us to understand the legal issues relating to telemedicine, as proven by Sabrina Burgat's doctoral dissertation, published at the University of Neuchâtel in 2012.

### The blood contamination drama

In the late 1980s and early 1990s, the blood contamination scandal hit the headlines. During this period, patients from across the world — among them, many haemophiliacs — contracted the AIDS virus by blood transfusion. Since then, the healthcare system relating to the use of blood has been radically restructured. In his PhD undertaken at the IDS, Vincent Corpataux — now a justice of the peace in the region of Broye (Vaud) — relates the history of this change.



### Neuchâtel: The land of innovations

UniNews 33, March 2014

#### Natural malaria repellents

Two researchers from the Institute of Biology, Thomas Kröber and the director of the Animal Physiology Laboratory Patrick Guerin, have identified molecules which repel malaria-carrying mosquitoes. In 2013, their discovery was patented, subsequently gaining the interest of pharmaceutical companies. These compounds — plant extracts posing no risk to health — could be equally effective against other arthropod carriers of disease, such as ticks or insects carrying leishmaniasis.

#### Biopatinas: the moulds which protect statues

The offspring of a partnership between the University of Neuchâtel's Microbiology Laboratory and the *Haute Ecole Arc Conservation-restauration*, a patina produced by mould to treat copper and bronze is a scientific innovation of huge interest to the world of the arts. What's more, the 'Biopatines' project — led by Edith Joseph, an academic researcher at the UniNE — is now entering a new phase of development. It has been selected for the *CTI Entrepreneurship Training* programme, provided by the Swiss Confederation's Commission for Technology and Innovation (CTI).



Edith Joseph, 'Biopatinas' project leader



## The lab that's correct to the nearest second

UniNews 9, February 2009

The second was first defined as a fraction of a duration linked to the Earth's movements: at first the day, then the year. However, as of 1967 it is no longer the result of a division, but a multiplication of tiny durations: the oscillations within atoms, measured with the help of sophisticated devices, a unique variant of which has been developed by the Time and Frequency Laboratory (LTF). The successor to Neuchâtel's Cantonal Observatory, the LTF was created on 1 February 2007. Linked to the Physics Institute, its future is in the hands of Professor Pierre Thomann and his deputy Gaetano Mileti, who ensure that the LTF continues its four-century-long quest to find ever more precise measures of time.

### The fountain of time

Long ago, a jet of water could measure time. It is fitting, then, that a 'fountain' is at the heart of the most accurate time measurement devices developed by the LTF, in which the parabolic flows of atoms are meticulously tracked by powerful machines. The 'fountains' imagined at the LTF and its predecessor, Neuchâtel's Cantonal Observatory, are found nowhere else in the world — not because they measure jets of caesium atoms rather than water, but because these jets are continuous. As a result, the FOCS-1 and FOCS-2 'continuous Swiss fountains' have earned a place at the Swiss Federal Institute of Metrology (METAS) in Bern-Wabern, which sponsored their creation.

### Miniaturisation: the other 'must have'

While the LTF constantly improves the accuracy of its devices, it also aims to decrease their size and weight, particularly given their applications in space. Like the American GPS system, Europe's Galileo will carry four clocks in each of its thirty satellites as a precautionary measure, with only one working at a time. Two hydrogen atomic clocks, with a volume of 15 dm<sup>3</sup>, will be flanked by two smaller rubidium cell clocks holding 2 dm<sup>3</sup>.





## Time: from the Earth to the heavens

UniNews 34, July 2014

In the summer of 2014, the University of Neuchâtel gathered together some of the biggest names in time measurement and laser research, as it hosted the European Time and Frequency Forum (EFTF) in June and Europhoton in August. To top it off, the EFTF had the pleasure of welcoming Serge Haroche, administrator of the *Collège de France* and winner of the 2012 Nobel Prize in Physics.

### In search of international time

The University of Neuchâtel contributes to the exact measurement of time in Switzerland, responsibility for which falls to the Swiss Federal Institute of Metrology (METAS). For more than ten years, the LTF and METAS have worked to create a continuous caesium fountain (FOCS), the second generation of which (FOCS-2) is under development at METAS. The project's aim is to join the exclusive club of around 250 caesium atomic clocks granted the honour of regulating International Atomic Time (IAT).

### The lab worth 1.8 million francs

This was the reward which Thomas Södmeyer brought back from the European Research Council in the spring of 2012, not long after he arrived at the LTF. Clara Saraceno — a UniNE and ETHZ postdoctoral fellow — works on this project aiming to pioneer the development of a high-speed laser able to fit on a tabletop while maintaining the performance levels associated with cumbersome, complex and costly laser systems. Its prospective applications mainly involve the exploration of the dynamic phenomena of matter, whether gas, solid or liquid, at the molecular and atomic levels.

### The clocks that keep the planet ticking

Since early 2014, the LTF — having proven its worth in space — has participated in the development of timepieces for the terrestrial component of GPS systems, such as Galileo. This research takes place in the context of a Franco-Swiss consortium termed LAMA; the LTF's contribution, provided by Gaetano Miletì and Renaud Matthey, is supported by the CTI (Commission for Technology and Innovation).

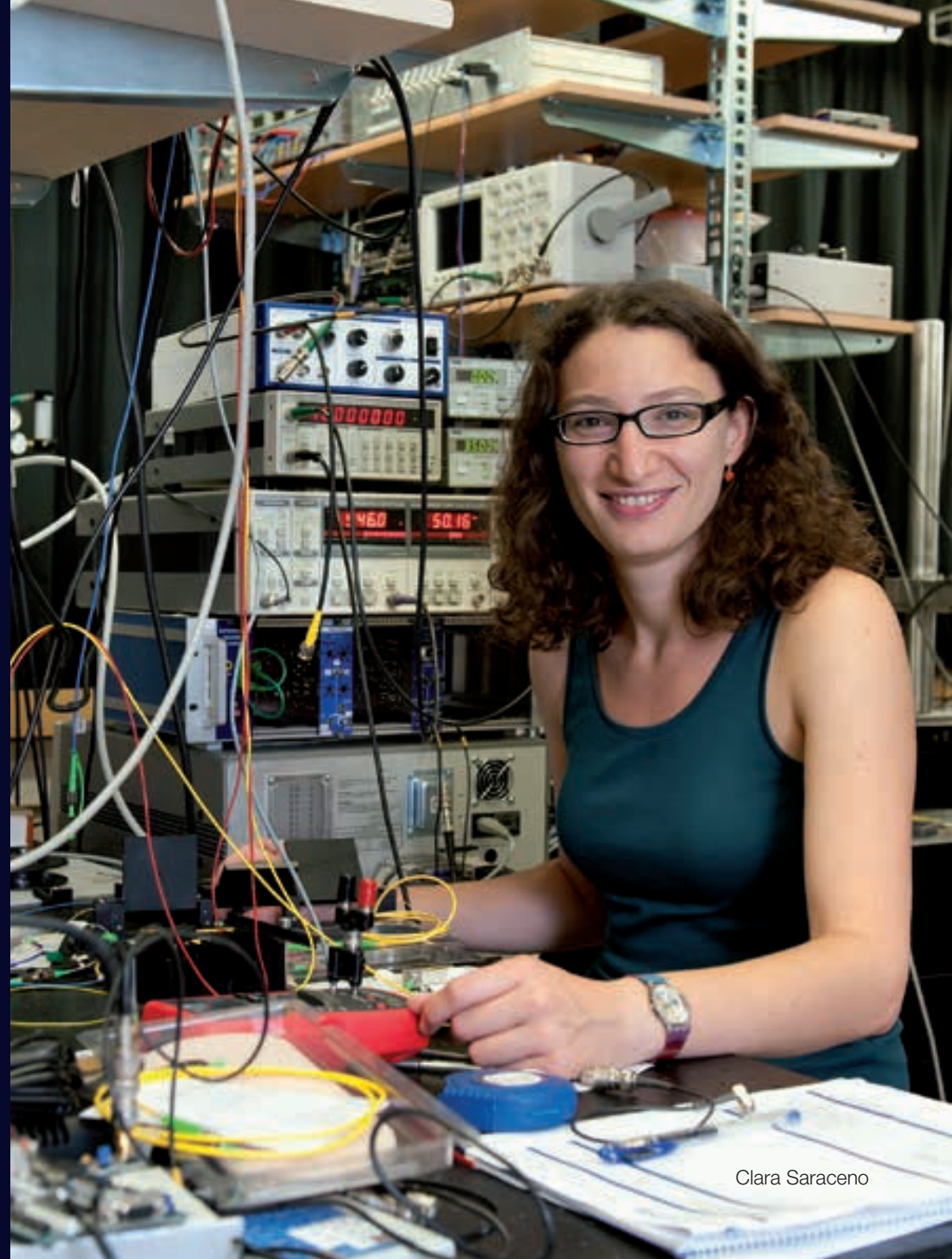


Photo: Pierre-William Henry

Clara Saraceno



## A horological heritage

UniNews 25, March 2012

The designation of La Chaux-de-Fonds and Le Locle as UNESCO World Heritage sites has brought international recognition for our canton's watchmaking cities. This fact has not escaped the attention of the University of Neuchâtel's researchers in humanities, be they ethnologists, historians or sociologists. The mountains of Neuchâtel, with their close links to the timekeeping industry, form a particularly fertile backdrop for research.

### From La Chaux-de-Fonds to China

As part of her doctorate, supervised by Laurent Tissot, Sandrine Girardier examined the production practices and commercial relations of the watchmaker Jaquet-Droz in the late eighteenth and early nineteenth centuries. By poring over account books, inventories and commercial correspondence, the young historian was able to uncover the entrepreneurial strategies of the creators of the famous 'androids', whose ornate mechanical products were sold as far away as China.

### The march of science, in human form

The Writer, the Draftsman and the Musician: these three 'androids', created by Jaquet-Droz, perfectly illustrate the expertise of the 18th century watchmaker. But to reduce these machines to mere technical curiosities would be to overlook one of their principal purposes: scientific progress.

### A timekeeper over the years

The private diary of the engraver and gilder Louis Turban (1874-1951) was the subject of a Master's thesis by historian Joel Jornod, supervised by Professor Philippe Henry. Although its main focus is the ups and downs of its author's personal life, the document gives us a clearer idea of how the watchmaking professions of the early twentieth century functioned in La Chaux-de-Fonds.



Photo: MAHN © Stefano Iori

The three Jaquet-Droz androids, presented for the first time at La Chaux-de-Fonds in 1774.

### **Women: the mainstays of the watchmaking workforce**

What would Swiss watchmaking be without the 'little hand' of the industry's women? In his doctoral thesis, historian Francesco Garufo argues that the manufacturing of timepieces was undeniably helped by the migratory waves of the twentieth century, and especially the young, female, Italian workers who arrived *en masse* in the 1960s. When analysing the records of the Tissot factory at Le Locle, Francesco Garufo realised how many female workers came from Roncola, a small village of 300 souls in the Bergamo mountains — a fact most readily explained by 'word of mouth' recruitment.

### **When to share, and when to keep schtum**

Watchmaking is renowned for its jealously guarded manufacturing secrets. But how can we investigate the transfer of skills when so much knowledge is, by definition, untransferrable? Anthropologist Hervé Munz has collected a variety of testimonials from watchmakers across the Jura region, in an attempt to work out the role of secrecy in the practice of the profession. For two days a week, he immersed himself in Valentin Jobin's class at the CIFOM Technical School, Le Locle, to analyse the ways in which watchmakers' handiwork is communicated.

### **Tradition: marketing's latest wheeze**

While the manufacture of timepieces in the Jura Region goes back more than three centuries, the notion of 'tradition' only surfaced in the 1980s — and, even more surprisingly, has little to do with the craft itself. Reeling from the influx of electronic watches from Asia, the Swiss watch industry gradually began to revive its image, emphasising features other than precision and value for money, the features which had once cemented its reputation. 'Little by little, values such as "tradition", "know-how" and — more recently — "heritage" have come into play,' concludes Hervé Munz, assistant doctoral student at the University of Neuchâtel's Institute of Ethnology.

### **Authenticity over functionality**

The watches of the Jura Region are so seductive because they represent something authentic, not just because they tell the time more reliably and precisely than their competitors, as the fabled 'Made in Switzerland' has always implied. This is the conclusion of sociologist Hugues Jeannerat, at the end of his doctoral thesis on territorial economics, supervised by Professor Olivier Crevoisier.



Photo: S. Varone, CIFOM-ET



## Football: surveillance and safety

UniNews 27, May 2012

### Study goals

The growing computerisation of our civilisation is causing new control systems to emerge. From surveillance cameras to smartcards, from GPS systems to every kind of sensor, it is 'smart' surveillance technologies which now manage our lives. Big sporting events such as the upcoming Euro 2012 contest — each of which comes with its own flurry of resources — merit particular investigation; the enormous risks inherent in such events, especially in terms of terrorism and hooliganism, cause a proliferation of security measures, whose financial consequences are no less phenomenal.

### Does CCTV always work?

There is little to criticise of CCTV when it manages a stretch of motorway, or monitors the atmosphere in a stadium; nonetheless, this does not make it a panacea. Francisco Klauser, the UniNE's director of political geography, is keen to distinguish the overall use of this technology from its real-world effects. If a drop in crime is observed as soon as a device is installed, this effect almost totally disappears within five to seven months.

### Digitised and controlled environments

'Today, the big challenge of surveillance is not to secure clearly delimited spaces, but to control and manage networks and flows, both human and non-human,' Francisco Klauser argues. These days, most products are equipped with electronic chips which monitor their handling. Little escapes this new, universal labelling, from the new Swiss passports to the roadside trees of Paris, 95,000 of which have already been chipped!

Francisco Klauser



## Vision 2016

UniNews 31, June 2013

### Big Data at the UniNE

The University of Neuchâtel has at its disposal multidisciplinary skills which can deal with large amounts of scientific data taken from the internet, vital to many areas of research. These range from information management and search software to issues of privacy and encryption. Their consolidation allows for greater synergy between teams from the Faculty of Science and those from the Faculty of Economics and Business.

### The data goldmine

It is the central nervous system of the 21st century economy. Like miners looking for diamonds, data mining experts are diving into the depths of the internet, hoping to surface with relevant information. As a result, web giants have become the masters of the targeted advert; and, as if by magic, the topics on screen relate — directly or indirectly — to the last websites visited.

### 'Helping with our enquiries'

Under the direction of Professor Kilian Stoffel of the Information Management Institute, Fabrizio Albertetti's doctoral thesis aims to gather together information from the police to develop automatic analytical methods in criminology. It is part of a Swiss National Science Foundation (SNSF) basic research project, undertaken in partnership with the University of Lausanne's School of Criminal Science. The project's current phase involves the consolidation of data on burglary, and the automatic classification of crimes to provide information useful to investigations. This will make it easier to spot serial crimes and hot spots to watch, and thus in turn suggest preventive measures.



## Security in the Drone Age

UniNews 45, March 2017

### Big Data Issues

Digital footprints on the internet, CCTV cameras in the streets, drones in the sky: what is becoming of

our privacy in the era of Big Data? How does society perceive the intrusion of digital technologies into our everyday lives? How can we protect our personal data and still benefit from ever more advanced IT equipment? These are some of the topics which the University of Neuchâtel's valuable research seeks to address.

### What people think about it

The public looks on the use of drones by the police or the army with a much more favourable eye than their use for commercial or leisure purposes. This is one of the outcomes of a survey conducted by Professor Francisco Klauser, along with doctoral student Silvana Pedrozo and a group of Master's students at the Institute of Geography at Neuchâtel. This first-of-its-kind survey studied the perception of drones by the public, within the framework of the social sciences.

Drones are used by quite a limited segment of the population — namely, young men fond of new technologies. “The aerial vantage point remains a male prerogative, just as kings in the old days would watch the enemy approaching from a castle tower, or as the royal cartographers would map the kingdom,” explains Francisco Klauser.

### A twenty-year-old technology

Since 2001, Swiss border guards have been using a drone system dating back to 1995 for specific missions around the border zones of the Swiss territory. These drones, built by the Swiss defence firm RUAG, are really unmanned aircraft, weighing in at 270 kilos, with 5.7-metre wingspans. Geographer Silvana Pedrozo describes this method of extensive border surveillance, albeit with limitations that justify the air fleet renewal planned for 2019.

### A Geneva neighbourhood studied at Neuchâtel

For the first time in Switzerland, the effect of CCTV cameras on the life of a neighbourhood was the subject of a long-term detailed study. Following the installation in 2014 of 29 CCTV cameras in Pâquis, an area well known for its vibrant nightlife, Raoul Kaenzig and Francisco Klauser interviewed various

population groups (residents, police officers, local business owners, and people involved in prostitution). On behalf of the Geneva State authorities, researchers from the University of Neuchâtel published the results of their surveys in November 2016, at the end of their two-year study.

### When your smartphone mediates where you go

How does the *Foursquare* software influence your movements? In 2013, for her PhD thesis at the Institute of Geography, Sarah Widmer investigated the use of this smartphone application in New York, carrying out a detailed analysis of about 30 users' feedback. In so doing, the geographer brought to light the various pros and cons of this navigational aid, which has become a recommendation engine for recreational businesses such as bars, cafés and restaurants.

### Private data and public interest

When it comes to health, banking or internet voting, cloud computing is an attractive solution for companies, governments and citizens. But how can we benefit from these services without revealing our personal data? By engaging in international research projects, the Computer Science Institute of the University of Neuchâtel has been addressing two aspects of cloud technology: secure data transfers, and data storage.

### Investigating under influence

In his PhD research project carried out at the Journalism and Media Academy of the University of Neuchâtel, journalist and anthropologist Gilles Labarthe is looking into the impact of New Information and Communication Technologies (NICT) on the methods used by investigative journalists in French-speaking Switzerland. Despite the advantages these new tools offer, they raise a number of issues, such as misinformation, internet surveillance, and the risks related to digital footprints.

### The limits to workplace surveillance

In the age of the pervasive use of computers in all professions, what does the law say about staff surveillance? Specialist in labour law Professor Jean-Philippe Dunand has written a commentary on the law as it applies to the protection of employees' personal data. On the same topic, he and his colleague Pascal Mahon also co-edited a 380-page book, which has just been published.

### **Policyholders held hostage**

In the health sector, insurance companies usually insist on the rescinding of medical confidentiality when it comes to their policyholders' medical records. It is not just doctors, hospitals and other healthcare professionals with knowledge of the case who are subject to such an exemption; it can also apply to other private insurers, social security insurers, social services and employers. Holder of the Chair of Social Security Law, Professor Anne-Sylvie Dupont, raises the issue of the imbalance between the insurance companies (who hold the purse strings) and the policyholders (on whom overly intrusive rules are imposed).



Photo: Bernard Lécho



Photo: Guillaume Perret



## Drilling down into geothermics

UniNews 6, October 2008

### Geothermics: a multifaceted resource

A multi-faceted science upon which the University of Neuchâtel relies, geothermics exploits an almost inexhaustible source: the heat of the subsoil. It uses a building's retaining piles to capture heat from the ground, or operates within a tunnel to retrieve naturally heated water. It produces no greenhouse gases, and needs neither transport nor storage of dangerous substances. Nor do the constraints of geology limit its use, as technically all soils are amenable to it. Conversely, it can be used for air-conditioning in summer, by drawing the cool up from the ground.

## The highest density in the world

Switzerland has over 40,000 installations of vertical geothermal probes linked to heat pumps — at one probe per square kilometre, the highest density in the world. Despite such achievements, Swiss geothermics lacks young scientists, as well as resources. To give the industry a much-needed shot in the arm, the Laboratory for Geothermics (CREGE) was set up in 2004. Hosted by the University of Neuchâtel's Hydrogeology Centre (CHYN), this network of expertise counts 50 members from 12 cantons, and both public and private sectors.

## Training skilled workers

Nowhere in Europe can a comprehensive education in geothermics be acquired. To remedy this, the University of Neuchâtel is launching its new Master of Advanced Studies (MAS), an innovation which will guarantee the country a young generation of scientists in this emerging field. This autumn (2009) will see the first students — who must have an MSc or equivalent degree — take on the challenge.



## Today's research, tomorrow's reward

UniNews 7, November 2008

### Does growth mean pollution?

Does pollution get worse as the economy grows? 'An increase in production and consumption does not necessarily mean more pollution,' argues the economist Carlos Ordás. 'In 1970s Switzerland, cars consumed almost eleven litres per hundred kilometres, and only one in five people owned a passenger vehicle. Today, one resident in two owns a car, but these cars consume far less: almost seven litres per hundred kilometres. The catalytic converter has also become ubiquitous. So, emissions of certain pollutants are substantially lower than they were in 1970.'





## Researching sustainable development

UniNews 20, March 2011

### Wireless water management

Peter Kropf, professor at the University of Neuchâtel's Computer Science Department, is involved in the development of a new, long distance, wi-fi communication technology. MontanAqua is a hydrological study taking place in Montana-Crans (in the canton of Valais), in preparation for the water scarcity which arid Alpine stations are expected to experience by 2050. It aims to test wi-fi terminals transmitting geographical and climate data recorded by sensors partly located on the Plaine Morte Glacier.

### Reducing the appetites of energy-hungry buildings

For five years, the University of Neuchâtel has been implementing extensive projects which aim to reduce its buildings' energy use. Most prominent among these are two energy reduction programmes — Energho and Holistic — specifically designed for buildings. The first is essentially based on tweaking technical systems such as heating, water and electricity; the second is part of a wider European energy reduction campaign launched in 2000.

### Tackling waste one day at a time

From little acorns, great oaks grow; a few simple acts and responsible transportation practices can bring about substantial improvements. Putting a computer on 'sleep' mode for two hours a day reduces electricity costs by 18%. When it comes to travel, the University of Neuchâtel is partnered with Neuchâtel-Roule, a bike loan scheme which the city runs between April and October. Finally, four collection points for thirteen different kinds of waste have been installed in various campus buildings; as a result, the University of Neuchâtel can boast of a monthly reduction of 4.3 tons in paper and cardboard waste.



## Of steam and water

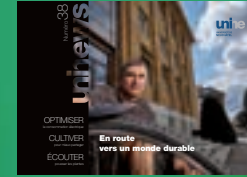
UniNews 36, May 2015

### From heat to heating

From a depth of 100 km down to its centre — over 99% of its mass — our planet's temperature is more than 1000°C, in contrast to the 0.1% of matter in the first three kilometres, which does not exceed 100°C. These facts alone provide ample justification for the exploitation of subsoil heat, according to Stephen A. Miller, chair of geothermics at the University of Neuchâtel, and specialist in the numerical modelling of geological processes. At the CHYN, he is developing a model unique of its kind, which gathers all the physical and chemical parameters needed to harness deep geothermics successfully.

### The energy of the future

As a source of energy, the Earth's heat is still more promising than ever. According to the Swiss Federal Office of Energy, geothermal power will have a production potential of 4,400 gigawatts per hour within 40 years, equivalent to the electricity consumption of the cities of Geneva and Lausanne combined. Involved in nearly all the medium and deep geothermal projects in French-speaking Switzerland, the CHYN brings a serious skills base to this endeavour. It also offers the first Master's degree in hydrogeology and geothermics in Switzerland, as well as a certificate of continuing education in deep geothermics, the only one of its kind in continental Europe.



## On the road to a sustainable world

UniNews 38, October 2015

### Solar electricity: all in good time!

Integrating solar energy produced in remote areas into the energy grid is a serious headache for electricity providers, especially when it comes to reconciling periods of supply and demand. Funded by the Swiss Federal Office of Energy and with the help of the University of Neuchâtel's Institute of Economic Research (IRENE), the *Flexi* pilot study has identified a number of viable methods by which this gap between periods of electricity production and consumption could be substantially reduced.

### Amazonia: fighting deforestation

Trees which store carbon dioxide in the soil, in the form of limestone; filing a land claim against the state; and, central to all of these developments, a Swiss NGO in Bolivian Amazonia. In her Master's thesis in the anthropology of development, supervised by Professor Marion Fresia, Laure Sandoz takes us through a range of local territorial issues, which together tell a human story of environmental preservation and the fight against poverty.

### The globalisation of greenhouse gases

In economics, globalisation is not just found in commerce; it can also be seen in greenhouse gas emissions.

The overlooked question of the geographical distribution of polluting emissions is what interests IRENE (Institute of Economic Research) professor Jean-Marie Grether and his colleagues. As he points out, 'inequalities in CO<sub>2</sub> and methane emissions within huge countries like China and the US are two to three times higher than the differences between the nations of the world themselves.'

### Action against food waste

Louise Wehrli and Sarah Ducret, students at the Faculty of Arts and Humanities, are the two founders of the Sustainable Student Alternative (Alternative Etudiante Durable, AED, in French), set up in December 2012 to fight food waste. Among its activities are the distribution of unsold vegetables on campus, and running *Disco'Soupes* and *gratiferias* (free markets) in the city of Neuchâtel. As part of the Sustainable Development in Universities programme, the Swiss Universities Conference has provided the AED with 25,000 francs of funding to support it over the course of four years.



Louise Wehrli (left) and Sarah Ducret,  
founders of the Sustainable Student Alternative



## Today's research, tomorrow's reward

UniNews 7, November 2008

### The water crisis in Cap Bon

In an example of so-called 'marine intrusion', seawater is seeping into the subsoil of Cap Bon, Tunisia. The majority of cultivated plants will not survive irrigation with salt water; and yet, slowly but surely, the salinisation process continues. A project by Jahouer Kerrou of the University of Neuchâtel's Centre for Hydrogeology and Geothermics (CHYN) uses statistical modelling to account for the subsoil's unknown physical parameters. The scenarios created will show, for example, what might cause a 20% decrease in rainfall in 2050, allowing us to envisage ongoing changes in climate.



## Neuchâtel: Land of innovations

UniNews 33, March 2014

### Kenya: water wells monitored from Neuchâtel

Dadaab in Kenya is often described as 'the largest refugee camp in the world', housing over 450,000 people from Somalia, Sudan, Uganda, Congo and other neighboring countries in conflict. Wells are the only sources of drinking water. In this landscape of sand and unforgiving sunlight, Ellen Milnes, assistant professor at the CHYN, oversaw the installation of sensors which can monitor the level and quality of the camp's groundwater online. The project was realised with the help of an SME from Neuchâtel, and financial support from both the United Nations High Commissioner for Refugees and the Swiss Agency for Development and Cooperation.

Ellen Milnes, Assistant Lecturer at the CHYN and her doctoral student Lucien Blandenier

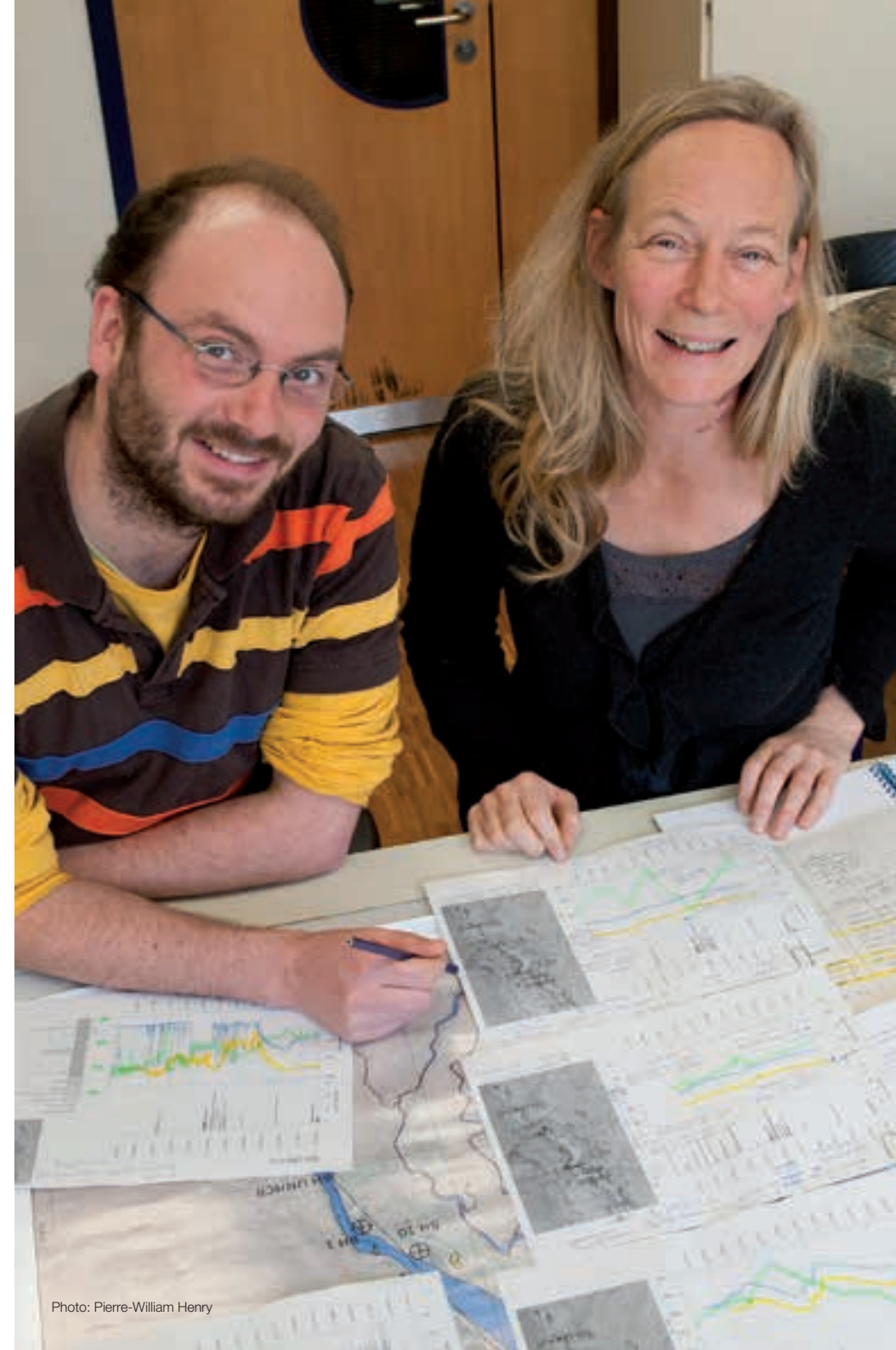


Photo: Pierre-William Henry



## Of steam and water

UniNews 36, May 2015

### A subterranean half-century

In 2015, the University of Neuchâtel's CHYN — Centre for Hydrogeology and Geothermics — celebrates half a century of surveying the subsoil to reveal its hidden resources of water and heat. Founded in 1965, the CHYN initially focused on the study of karst, the limestone rock typical of its native region; today, it is one of the world's foremost institutes in almost all fields of modern hydrogeology and geothermics. It is this success which led it to be named as one of the University of Neuchâtel's nine centres of excellence in 2013.

### Climate: leaks in Europe's water tower

With both the Rhine and the Rhône originating in the Swiss Alps, our country is considered the water tower of Europe. But global warming may yet dent this reputation. Is our nation's water reservoir in danger of drying up? In association with the University of Zurich, the CHYN is tackling this vital issue as part of a research project supported by the Federal Office for the Environment.

### The dark side of herbicides

Used to remove weeds from maize and wheat, the herbicides atrazine, metolachlor, acetochlor and chloridazon are the focus of research by Clara Torrentó, a postdoctoral CHYN fellow heading a transnational project to study waterborne micropollutants. Although atrazine has been banned in the EU and Switzerland for several years, there are still traces of it in the water to this day, with concentrations sometimes surpassing the levels considered safe for the environment and health.

### Managing water in emergency situations

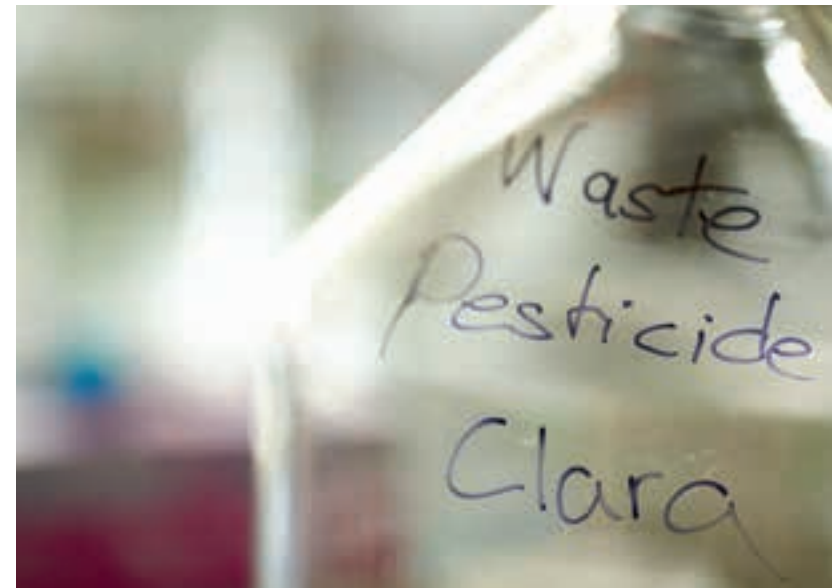
CHYN takes part in several water management projects across the world. Typical of these is the WATSAN continuing education programme, intended for professionals in the humanitarian sector, which teaches methods of ensuring access to drinking water in emergency situations. Ellen Milnes, WATSAN organiser and Assistant Lecturer at CHYN, outlines this adventurous project, which celebrates its 20th anniversary in 2015.

### Putting water on the map

In Chad, vast arid regions suffer from chronic water scarcity. To improve the understanding of this rare commodity, the CHYN takes part in the ResEau programme, which seeks to provide the country's water management authorities with the necessary tools to understand, evaluate and manage this resource. These tools, including the creation of hydrogeological maps, add to the resilience of many of the developmental sectors dependent on the management of 'blue gold', such as health and food security.

### Calculating the risk of leakage

For several years, the team of Pierre Perrochet, professor of underground hydrodynamics, has been engaged by the French National Agency for Radioactive Waste Management (Andra), helping to evaluate the hydrogeological characteristics of the site at Bure (in Meuse), earmarked for the burial of highly and moderately radioactive waste 500 meters below ground. If Andra's experts give the green light, site construction should begin in 2020.





## Amoebae for life

UniNews 39, February 2016

### Small size, big impact

Protozoa, protists, amoebae: these are just some of the names given to this unicellular animal which is so major a part of our planet's biodiversity. Under Professor Edward Mitchell's direction, the University of Neuchâtel's Soil Biology Laboratory thoroughly examines these organisms in a wide variety of ecosystems, from peatlands and forests to floodplains. Ranging between 5 and 500 micrometres, these creatures — hugely variable in shape and colour — constitute an essential component of the food chain in both terrestrial and aquatic ecosystems, be they freshwater or marine.

### Protists: tracking the climate, past and present

When it comes to the climate, peatlands are priceless, whether for their carbon storage capacity, which counteracts the greenhouse effect, or the information they provide on past climatic conditions and the impact of human activity — all discernible by studying the communities of amoeba inhabiting these unique environments.

### The dazzling diversity of amoebae

At first glance, the microscopic world can seem rather uniform — but nothing could be further from the truth. Shelled amoeba conceal a surprising degree of diversity, the global distribution of which is far from equal. This is the principal conclusion of a genetic analysis of 245 species of shelled amoeba, identified in 35 samples gathered from across the planet. The distribution of diversity among protists follows the rules already observed among macroscopic plants and animals.





## A valley of natural sciences

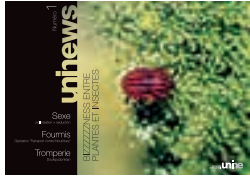
UniNews 48, December 2017

### The amoebae keeping the peatlands healthy

The Botanical Garden of Neuchâtel is conducting a range of experiments which aim to provide a better understanding of peatlands. In her doctoral thesis under the supervision of Edward Mitchell, Isabelle Koenig underscores the link between certain morphological characteristics of testate amoebae and a peatland's humidity level, itself a means of measuring the impact of global warming on these environmentally vital biotopes.



Edward Mitchell



## Plants and insects: strictly buzzness

UniNews 1, May 2007

The relationships between plants and insects have their winners and losers. This is the theme of 'Plants and insects: strictly buzzness', an exhibition taking place at the University and City of Neuchâtel's Botanical Garden between May 13 and November 7, 2007. Sponsored by the National Centre of Competence in Research *Plant Survival* based at the University of Neuchâtel, the exhibition asks who benefits from each flowerbed interaction: the insect, the plant, or both?

### Pollination: a form of seduction

Unlike us, plants do not seek out the attention of a partner from the opposite sex. Instead, their aim is to attract pollinators. The 'fatal flower' — that is, the flower most successful in luring insects — is conspicuous in both shape and colour, with its lower petals forming a landing platform, and coloured markings revealing a path to the nectar.



## Today's research, tomorrow's reward

UniNews 7, November 2008

### Agriculture through ethnologists' eyes

Farmers no longer feel that they can make a living selling produce, says the ethnologist Jérémie Forney. Due to the services which it provides for the wider society, such as maintaining the countryside and preserving the environment, agriculture now enjoys a measure of protection; and even though farmers may feel neglected, they are in fact held in high regard in Switzerland, receiving real support from the population. This can be seen not only in voting and polling data, but in the current vogue for locally-sourced produce.







## Scent: the secret weapon of the plant kingdom

UniNews 12, August 2009

### The Olfactometer: an incredible invention

In 2001, Ted Turlings and his colleagues invented a device which can visualise plant-insect interaction according to olfactory signals, and analyse the odours emitted by plants. The apparatus has six arms, each of which has an odour-emitting plant placed at its end. Various predators are then released into the machine's central conduit, and the researchers record the extent to which these move towards the arms, responding to the quantities of odour emitted. At the same time, the odorous molecules are intercepted by a substrate which in turn can be analysed in the lab. Two types of olfactometer have been created for research into maize: one to test airborne odours; the other, for those underground.

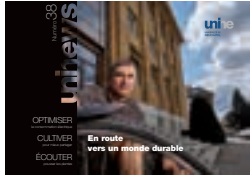
### From lab to cornfield

Across the world, maize farming presents colossal economic challenges. The University of Neuchâtel is part of the fight against the root-eating *Diabrotica virgifera* beetle. Ted Turlings' team has discovered that maize has a natural ability to defend itself: the damaged roots emit caryophyllene, an odorous molecule which attracts nematodes which prey on the tiny beetle. In another surprising discovery, researchers have noticed that European varieties of maize emit more caryophyllene than their American counterparts, and are better able to resist pest attacks as a result.

### When petunia met moth

Vivid colours; beguiling shapes; nectars and smells to sate the senses. Plants have no shortage of ruses to attract pollinators. But which smells bewitch the lepidopterans? The Laboratory of Sensory Physiology is trying to decode the essential relationship between the petunia and the tobacco hawk moth.





## On the road to a sustainable world

UniNews 38, October 2015

### Permaculture flourishing at the Unimail

Even in its first season, the Permaculture Garden at the Unimail has produced a bumper crop of biodiversity, from baby kiwifruit and squashes to salads and radishes. This student initiative forms part of a major sustainable development project conducted by the University of Neuchâtel, which was awarded a 100,000-franc competitive grant by the Swiss University Conference (SUC) one year ago. Permaculture involves cultivating plants according to the interactions which organisms develop in the wild. This approach is still largely experimental; here, the aim is to produce food in urban areas, while accounting for agricultural, scientific and social concerns.

### Listening to the plants grow

Thanks to ultrasonic sensors originally developed to measure the height of snow, researchers can now 'hear' plants growing. This is one of the amazing outcomes of research into the consequences of climate change on Alpine flora. The project is headed by Yann Vitasse, a postdoctoral fellow at the University of Neuchâtel and the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL); it is supervised by Martine Rebetez, Chair of Applied Climatology, and Christian Rixen, from the Swiss Federal Institute for Snow and Avalanche Research (SLF).



## Plant survival

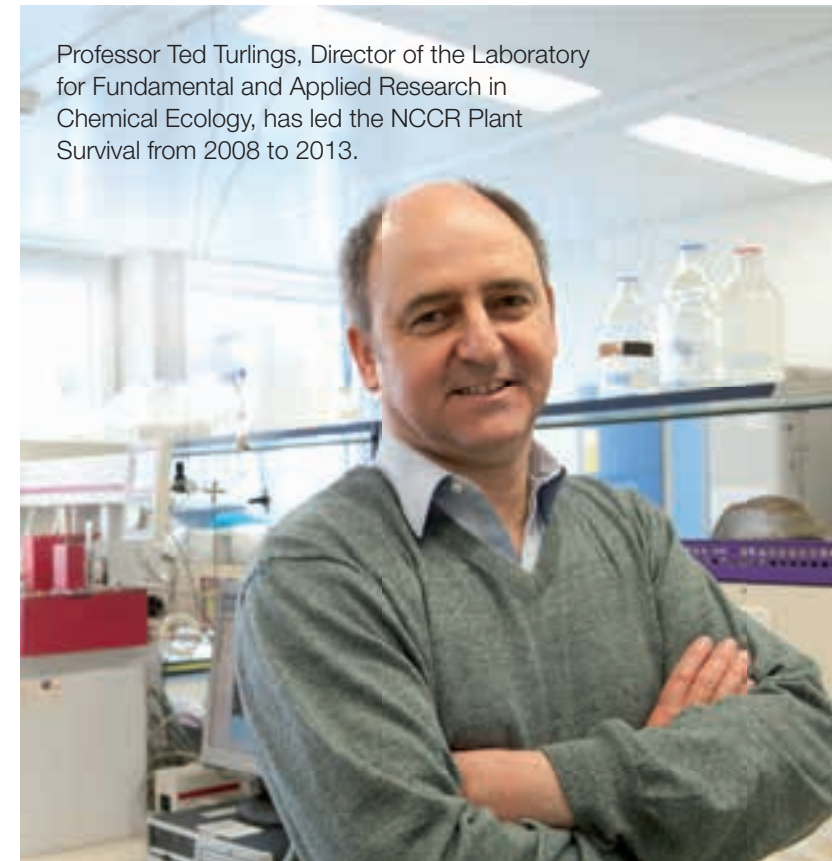
UniNews 29, January 2013

### A long-term research project

In 2001, the *Plant Survival* project began, under the direction of biology professor Martine Rahier. It was selected after the first round of competition in the National Centres of Competence in Research (NCCR) process, whereby the national government encourages projects lasting as long as twelve years. As such, the NCCR *Plant Survival* is expected to come to an end in spring 2013.

## Helping agriculture and biodiversity

Bolstering the natural defenses of crops, understanding more about how plants access their food and adapt to changes in light, studying pollination mechanisms, and controlling invasive plants by natural means: these are just some of the topics which the NCCR *Plant Survival* has taken on. With an overall budget of 74 million francs, to be spent over twelve years, this network of scientists — led by the University of Neuchâtel — enjoys the support of teams from the universities of Fribourg, Berne, Lausanne, Geneva and Zurich, as well as two polytechnic schools, and federal research stations like Agroscope.



Professor Ted Turlings, Director of the Laboratory for Fundamental and Applied Research in Chemical Ecology, has led the NCCR *Plant Survival* from 2008 to 2013.



## A valley of natural sciences

UniNews 48, December 2017

### Twenty years of openness

The Botanical Garden of Neuchâtel, a local destination for culture and relaxation, is celebrating its twentieth year in the Vallon de l'Ermitage. Its history, however, goes all the way back to the end of the 19th century, when the first botanical garden opened its doors on the Avenue du Premier-Mars. At that time, the garden was expressly provided for university research; a couple of centuries (and relocations) later, that mission is much expanded. Today, an ordinance grants the city management of the institution, currently under the leadership of Blaise Mulhauser; for its part, the university maintains the financial and logistical support for research, under biology professor Edward Mitchell.

### Neonicotinoids in 75% of the world's honey

Three-quarters of the honey produced worldwide contain neonicotinoids, a family of pesticides known for its role in the decline of bees. This conclusion is the result of analysing nearly two hundred honey samples collected by members of the public and offered to the Botanical Garden, with the resulting study appearing in the prestigious journal *Science*. So far, the neonicotinoid concentrations observed have not exceeded the maximum amounts authorised for human consumption.

### The high-altitude flora at greatest risk from global warming

In the Botanical Garden of Neuchâtel's greenhouses grow meadow grasses collected from a variety of Alpine slopes. Biochemical analyses show their defenses against root-eating herbivores decreasing in line with increases in altitude. However, global warming is pushing up the number of predatory insects, which in turn threatens the survival of alpine plants. Professor Sergio Rasmann is in charge of this study, which is supported by the Swiss National Science Foundation.

### The wheat that cheats: soil fungi as performance-enhancers

Among Thomas Kolly's discoveries during his MSc in Biogeoscience was a soil fungus which improves the growth of certain varieties of wheat. His work aimed to compare the beneficial effects that common soil fungi can have on different varieties of wheat. The experiments carried out in the Botanical Garden's greenhouses give us a better understanding of the interactions between soil micro-organisms and plants, with the goal of developing sustainable agriculture.



Edward Mitchell et Blaise Mulhauser



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