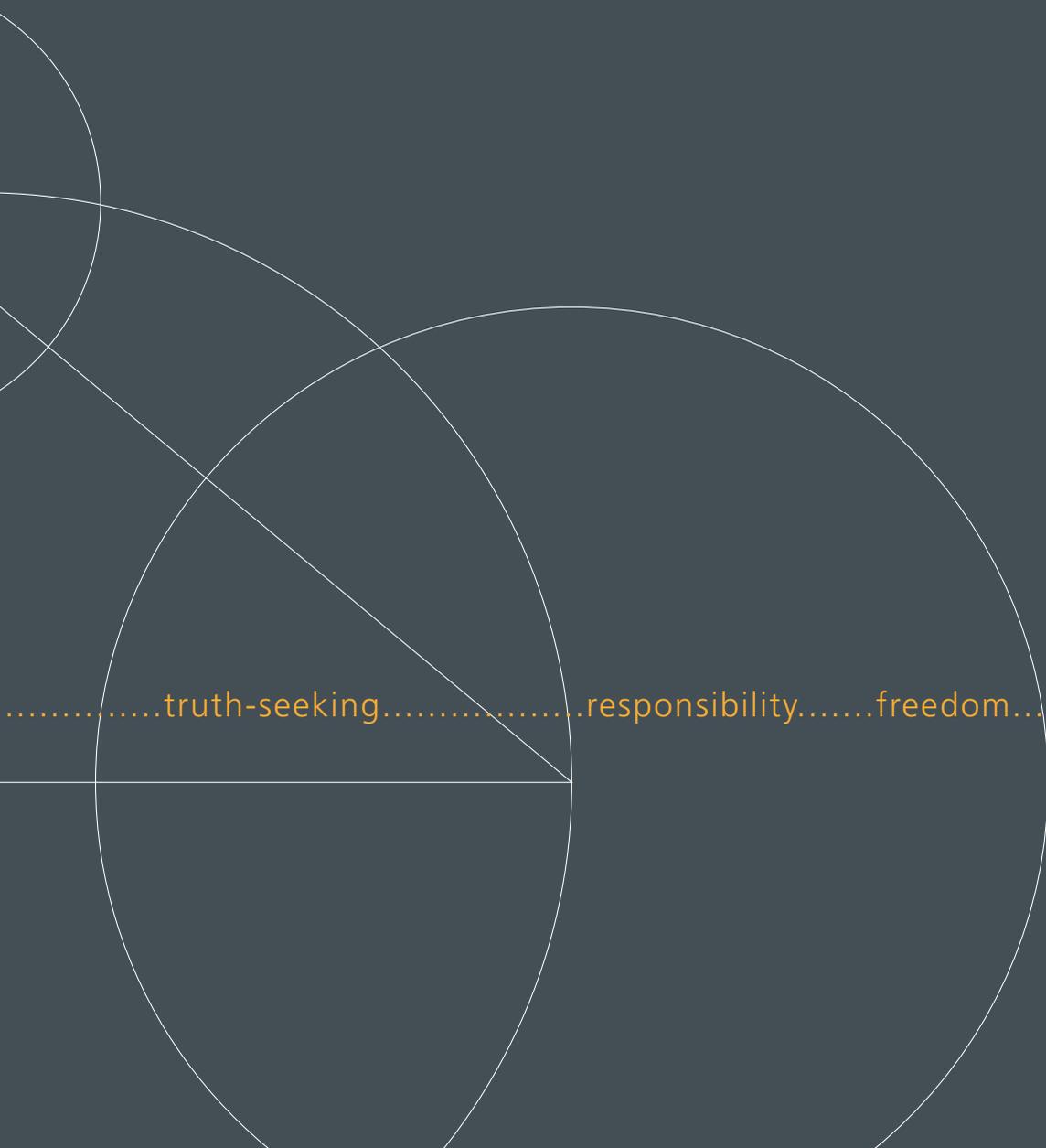




University Life  
2005





.....truth-seeking.....responsibility.....freedom.....commitment.....

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PHOTO: HEINE PEDERSEN

# A year full of changes

2005 has been an exciting year for the University of Copenhagen. In January, the University Board took office and embarked on the management reform laid down in the new Danish University Act.

**T**he Board has three main responsibilities: formulating the strategic guidelines for the University's development, appointing the Rector and approving budgets and accounts, including making any necessary prioritisations.

First, the Board is responsible for defining the overall strategic guidelines for the University's organisation and development. This also means that the Board formally enters into the Performance Contract with the Minister, even though it is a process that involves the entire University Management at all levels. The former Academic Council had drawn up a preliminary Performance Contract, and at the end of 2005, the Board discussed for the first time the contract, which must be finalised in 2006. The task of defining the overall strategic guidelines has been postponed until the daily management, both central and decentral, is in place. It is very important that the strategy work takes place in close

collaboration with the Board and the appointed management team.

Second, the Board is responsible for appointing the Rector. The Rector is the University's representative and spokesperson in relation to the Ministry and society in general. The Rector must call attention to and represent the University as a single institution - internally and externally. Because there was a need for fast clarification of the future management conditions, the Board decided at one of its first meetings to appoint a Rector as soon as possible and not to await the strategy work.

The position of Rector was advertised before the summer holidays, and at the end of September Ralf Hemmingsen, consultant physician, professor of psychiatry and Dean of the Faculty of Health Sciences, was appointed Rector. On 1 November, he took office as the first appointed Rector in the 526-year history of the University.

The next task will be to appoint the rest of the University Management so that the entire management reform is completed by the end of 2006.

Third, the Board is responsible for approving budgets and accounts and for contacting and concluding agreements with the auditors. This budget responsibility also requires the Board to make any necessary prioritisations. A variety of po-

litical requirements are placed on universities these days regarding the evaluation of research and educational programmes, internationalisation, commercialisation of research results, dissemination and a variety of other things. The Board is responsible for ensuring that there is funding to cover the necessary measures in these areas. Consequently, it has been necessary to set aside a special pool for such purposes in the newly passed budget.

Rarely have expectations of the universities in Denmark been as great as in recent years. The Danish Government has declared that funding for research will increase in coming years, but this promise has been accompanied by new and sharper demands of the research conducted.

Thus, the University of Copenhagen faces significant challenges: Researchers' good ideas must, when relevant, be commercialisable, and researchers must communicate even more to a wider audience. Students must begin their studies at an earlier age and should preferably make the right choice the first time. They must complete their studies within the normal duration and find employment immediately after graduation. The degree programmes must be top quality, both academically and with regard to relevance to the labour market.

These are ambitious goals in a time when it can be difficult to obtain the funding to match such ambitions. The Board's task is to help make the prioritisations that underpin these great ambitions. The Board, therefore, looks forward to the University's framework conditions, with regard to the Performance Contract and long-term economic conditions, being settled in 2006. ■



Bodil Nyboe Andersen  
Chairperson of the Board

## Key decisions by the Board in 2005

### 12 January

First meeting. Bodil Nyboe Andersen elected Chairperson, Claus Bræstrup elected Deputy Chairperson.

### 23 January

Discussion of negotiations regarding the University's property finances (SEA – state property administration).

### 26 April

Statutes for the University, Biotech Research and Innovation Center (BRIC) and Nordic Institute of Asian Studies (NIAS) passed. Preliminary discussion of 2006 budget.

### 21 June

University's opening balance sheet approved and Rector authorised to enter into negotiations regarding nanotech and pharmaceutical consortia.

### 6 September

Discussion of hearing on University's core areas.

### 27 September

Appointment of new Rector, Ralf Hemmingsen, as of 1 November. Endorsement of adjustments to 2006 budget.

### 25 Oktober

Approval of recruitment policy for management. Discussion of 2006 budget.

### 30 November

Rector instructions approved.

### 13 December

2006 budget approved. Election regulations for Academic Council passed.

Students should meet “star researchers” and feel the rush. They should participate in symposia and interact better with the community. And the University should set certain minimum requirements that researchers must meet in order to be teachers, maintains the University’s new Rector, Ralf Hemmingsen. In November 2005, he took office as the University’s first appointed Rector. In this interview he talks about where and how he intends to implement changes.

# Meet the “stars” and feel the rush

**F**or years, there has been talk of improving the University’s degree programmes. Why do you plan on making a special effort now?

“I could be somewhat audacious and say that the Board gave me a mandate to run the University, and I think it’s important,” says the new Rector of the University of Copenhagen, Ralf Hemmingsen, with a smile and continues: “Also you can always refer to international competition – a popular demand – but I think that’s a little vague. However, I do think it’s important to emphasise that the University’s statutory mission is to produce enough highly educated people for society. In fact, we find ourselves in a time when society apparently wants to give us more money and wants to invest in first-class research. That makes it our responsibility to ensure that the money is spent on something that can improve teaching and benefit students and all parts of society that employ our graduates.

*Within a matter of a few years, the University of Copenhagen is to have a much more attractive study environment. But what needs to be improved?*

“We need to create a study environment that is more interactive. One where the students have much more contact with Danish and international students from other disciplines. And we need to improve our physical surroundings, such as our canteens, study niches, lunchrooms and meeting facilities. The condition of our libraries is also important. The more electronically based knowledge there is, the more important it is that we maintain areas where students can meet. Conversation and dialogue are a very important part of studying.

Otherwise the danger is that a large portion of our students will find themselves enrolled in what amounts to distance study programmes. The same applies to our teachers. They need better meeting facilities. Now there are places where they can meet in staff and teacher canteens, but they aren’t available everywhere,” he explains.

Professor Hemmingsen would also like to bring together the University, which is currently spread out across most of the city.

“I will work for an organisation that establishes three main campus areas, which in addition to the City Centre also include Amagerfælled and Nørrefælled,” he says.

## Meeting with researchers

He believes it is important that students meet and are challenged, as well, by the best researchers – the so-called star

## Ralf Hemmingsen

- 1949: Born on 12 October
- 1975: Degree in medicine
- 1976: University gold medal recipient
- 1981: Doctorate in medicine at University of Copenhagen
- 1986: Consultant Physician, Copenhagen University Hospital – Frederiksberg
- 1986-2002: Chief Hospital Physician, Psychiatric Unit, Copenhagen University Hospital – Bispebjerg
- 1995: Professor in psychiatry, University of Copenhagen
- 2002: Dean, Faculty of Health Sciences
- 2005: Appointed Rector of the University of Copenhagen



PHOTO: HEINE PEDERSEN

researchers – early in their studies:

“Students need to see the research methods put into practice, to see the ‘big shots’ in action and feel the rush that comes with the job. It’s not that I think all ‘star researchers’ should spend all their teaching time on first semester students. But they should be involved as teachers in some way or other,” he says and continues:

“The content of our programmes can also be improved, such as with more targeted student symposia and seminars. I don’t envision these symposia as compulsory elements in the curriculum, but rather as open opportunities for students to come into contact with different research methods and findings. Some departments have a tradition – and others do not – in which students take active part in scientific meetings at the department level. And I think we should encourage more to do the same.”

*What makes you think that you can actually change teaching practices to any extent?*

“You can’t change something if you don’t indicate a direction. You have to set a strategic course, and that will influence certain decisions. But there are also a number of ‘buttons’ you can press,” he says and continues:

“For instance, I think our requirements should be higher when we assess the academic and teaching experience of applicants. We should develop compulsory training courses for those researchers who don’t have enough teaching experience. And if ‘star researchers’ won’t accept that, then they shouldn’t be working at our University – at least not as a general rule.”

### Better teachers

Professor Hemmingsen also wants to combine and strengthen the professional services – through better teaching methods – which today are spread among several different faculties:

“We need to make sure that our teachers are qualified and keep up-to-date in the development of teaching methods. And there should be a service system and a set of common requirements to the teaching skills of our teachers,” explains Professor Hemmingsen.

“A third element is using more general staff policy tools, such as pay bonuses. People who organise good teaching programmes, implement curricula, etc. should also be on the list of people who qualify for a bonus.”

*If you ask the students, they say that there have been a lot of evaluations, but they haven’t been put to use. What is your experience with this?*

“Based on my own experience at Health Sciences, I don’t think that’s just a myth. And for that reason, among others, I would like to have the University’s teaching and teacher evaluation systems systematically accredited by an international body. That way we know what the evaluations lead to, how often they take place, who conducts them and so on. We need evaluations of some kind that are repeated, so we can see if they have a positive effect,” he says.

*Continued on page 54*



PHOTO: JOHN E. ANDERSEN

# IARU

## Global alliance of universities

The University of Copenhagen has joined a binding alliance with nine other leading universities all over the world.

**T**he University of Copenhagen is in high society in the IARU – an alliance of 10 of the most respected research universities in the world. The alliance was originally to be called GUA – Global University Alliance, but that name had already been taken by a small group of Canadian universities. So they chose IARU – International Alliance of Research Universities. In the IARU, the University of Copenhagen is joined by three US, three Asian, one Australian and two other European universities, all of which are leaders in their home countries. Together these universities, which are all among the top 25 best universities, have a total of 244,189 students.

### Focus on research

The IARU is a new type of alliance with few members, who

have agreed to work closely as partners to make a global difference. In the area of education, they intend to offer joint degrees, intensive summer courses for PhD students, teacher and student exchanges as well as traineeships in global companies and organisations. In the area of organisation, they will set targets for applying research results commercially, handling intellectual property rights and fundraising.

Collaboration in the area of research is a very high priority for the alliance. Under the title 'Global Change', the 10 universities intend to explore the prospects of entering into joint research projects within five areas, which would benefit from research being conducted not just nationally, but comparatively and globally as well: Migration of People; Ageing and Health; Food and Water; Energy and Environment; Security.

### Influential partnership

The first chairperson of the IARU is Professor Ian Chubb, Vice-Chancellor of Australia National University. In answer to the question of how this alliance differs from the other university alliances, he says:

“The partnership will be influential: the quality of the universities involved is indisputable. And the same can be said of the universities’ humane commitment to educating leaders who possess global vision, tolerance and understanding of different cultures that is so necessary today. Combine these educational goals with highly qualified joint research that deals with many of the big issues we face regardless of where we live on earth – and the benefits are limitless.”

### Collaboration in all disciplines

At the University of Copenhagen, the Faculty of Health Sciences produced, in collaboration with colleagues at Peking University, the first joint project description in the area of Ageing and Health. But all faculties can be involved. There are, for instance, clear opportunities for the Faculty of Law in

the area of Security, while the humanities, social sciences and theology can see possibilities in the project on the Migration of People. The natural sciences would like to contribute to the project on global Energy and Environmental issues.

Fruitful collaborations have helped ensure the University of Copenhagen a place in the alliance, explains John E. Andersen, head of the University’s International Office:

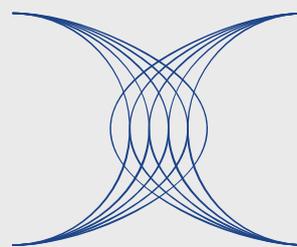
“The initiative originated at the universities in Singapore and Australia, where the University of Copenhagen has excellent connections. Especially in Singapore, with whom we already collaborate in the area of nanotechnology.” ■

## Number 66 in the world

The University of Copenhagen has an excellent reputation. As one of two universities in Scandinavia, it is among the top 100 best universities in the world, according to a list published in *The Times Higher Education Supplement* in October. The University of Copenhagen is number 66 in the World University Rankings, at the same time ranking 20th in Europe. The Faculty of Humanities achieves a distinguished position of 18th in the world, while the Faculty of Social Sciences is among the top 50.

The ranking is based on six indicators: university assessments by 2,375 academic colleagues is a key criterion. But the opinions of potential employers are also taken into account. The ability of the universities to attract international students and researchers, and the student-teacher ratio are other parameters - as is the number of citations per researcher.

Earlier in the year, a study by the publishing giant, Thomson Scientific, found that the University of Copenhagen is in the top percentage of the world’s best universities in 18 out of 22 disciplines when it comes to citations per article published in 8,700 internationally recognised scientific journals. Studies like these should, of course, be taken with a grain of salt. For instance, usually only English-language journals are analysed. It is also important to take care when comparing the same study from year to year, as the measuring methodology is often adjusted.



## INTERNATIONAL ALLIANCE OF RESEARCH UNIVERSITIES

*The IARU comprises the Australian National University, National University of Singapore, Peking University (PKU), Swiss Federal Institute of Technology (Eidgenössische Technische Hochschule, ETH, Zurich), University of California at Berkeley, University of Cambridge, University of Oxford, University of Tokyo, Yale University and University of Copenhagen.*

[www.iaruni.org](http://www.iaruni.org)



PHOTO: CHRISTOFFER REGILD

## An unexpected success

The research team behind cancer researcher Professor Ulla Wewer has developed a simple technique for detecting foetal chromosomal abnormalities. The technique is patented and a licensing agreement has now been signed with a US pharmaceutical company. The agreement is set to generate million-kroner revenues for the University in the years ahead.

**C**ancer research and foetal diagnostics do not usually have much in common. But in this story they do. Because this is a story about cancer researchers who unexpectedly happened on a new and non-invasive technique for foetal screening.

Professor Ulla Wewer heads a team of researchers at the Faculty of Health Sciences, which investigates how cancer cells communicate with surrounding tissue. ADAM12 is the name of the protein at the centre of current research. The protein occurs in tissue displaying rapid growth, such as cancer cells. A few years ago, the team discovered that the placenta in pregnant women also contains high levels of ADAM12.

“We wondered about the function of the protein and started discussing whether the protein level might change

when placental function is compromised, for example in connection with foetal chromosomal abnormalities,” explains Professor Wewer.

The researchers were onto something new, and discussions about the function of ADAM12 saw the start of a PhD project for Dr. Jennie Laigaard in collaboration with Dr. Michael Christiansen, Consultant at Denmark’s Statens Serum Institut.

“We devised a technique for measuring pregnant women’s blood protein levels, and it turned out that the ADAM12 count drops in the presence of foetal chromosomal abnormalities, such as in cases of Down’s Syndrome, but also in women with pre-eclampsia,” says Professor Wewer.

## New Danish pharmaceutical alliance

In June 2005, a research consortium was formed in the area of pharmaceutical science. The University of Copenhagen, the Danish University of Pharmaceutical Sciences, the Royal Veterinary and Agricultural University and the Technical University of Denmark established the Danish Pharma Consortium. The consortium is a platform for collaboration in research, education and innovation. For instance, the four universities will establish a "course market" designed to strengthen the educational choices in the discipline of pharmaceutical science. And the private sector will now only have to deal with one organisation.

### An unusual story

Following the discovery of ADAM12's unexpected function in the placenta, the research team got in touch with the Tech Transfer Unit at the University of Copenhagen, which soon saw its commercial potentials.

"They were extremely helpful. They got the invention patented, and soon tracked down companies interested in negotiating for the patent," says Professor Wewer.

The research team has now started collaborating with the American pharmaceutical firm of Perkin-Elmer Inc. This partnership is expected to generate million-kroner revenues for the University in the years ahead. The story is unusual in that the commercial potentials of the discovery were so evident. And because the researchers avoided the long development phase leading up to a saleable product which is usually entailed when pure research is to be applied to industrial production.

### Motivating for students

The research team at the Faculty of Health Sciences and Perkin-Elmer Inc. is now in the process of developing the assay kit to be used by doctors in routine screening of pregnant women. The assay kits will allow doctors to identify those women for whom a placental biopsy would be advisable.

"The assay kit will help to reduce the number of placental biopsies required. This is beneficial for health, since the biopsies always carry a small risk of miscarriage," says Professor Wewer. She is committed to improving the prospects of pure research resulting in innovation and commercial applications. And she is particularly alive to the idea of a targeted drive to attract budding researchers:

"It's a question of opening the eyes of junior researchers to the idea that pure research can actually result in both patents and improved patient health. I believe we should be stimulating young people's entrepreneurial spirit early on in their careers. It is vital for them to see that pure research can also be commercially viable," says Professor Wewer. ■

## The year's events 2005

### A selection of events from the year in review at the University of Copenhagen.

- 1.1. The Institute of Molecular Biology and the August Krogh Institute merge into a single institute under the name Institute of Molecular Biology and Physiology.
- 1.1. The University of Copenhagen becomes the host of the Nordic Institute of Asian Studies (NIAS), operated in partnership with Copenhagen Business School (CBS) and Lund University. NIAS is concerned with political, economic, social, cultural and commercial developments in Asia.
- 1.1. Professor Peter E. Nielsen, Department of Medical Biochemistry and Genetics, receives DKK 1.8 million from the EU's Sixth Framework Programme for developing techniques for repairing mutations arising through genetic diseases.
- 1.1. Professor Gunhild Waldemar, Department of Clinical Neurosurgery and Psychiatry, introduces a research project to investigate the nature and significance of the loss of cerebral tissue and neural connections in dementia-prone elderly. The *VELUX Foundation* grants DKK 4.2 million to the project.
- 1.1. The Center in Non-Commutative Geometry in the Department of Mathematics opens. Financed by the Danish Research Council, the Centre is the only one of its kind in Denmark.
- 4.1. A Medical Museion research team starts the first University of Copenhagen weblog at [www.corporeality.net/museion](http://www.corporeality.net/museion). The blog is a combination of project diary, electronic bulletin board, debate forum, research advisory and publishing site.
- 12.1. The University of Copenhagen's new Management Board, appointed on 1 January, holds its first meeting.



- 12.-26.1. Assistant Research Professor – and expert in waste water and health – Peter Kjær Jensen, Institute of Public Health, acts, in the wake of the tsunami, as advisor to the Indonesian health authorities and WHO in Banda Aceh, Indonesia.
- 20.1. The first new, interdisciplinary research unit, the *Muscle Cluster*, opens at the Faculty of Health Sciences. The main objective of the research is to understand how muscles contribute to the prevention of illness and death.

In 2005, a major international research project with the participation of Professor Rasmus Nielsen, from the Institute of Biology, released the most detailed analysis ever produced of the genetic differences between people and chimpanzees – and among people.

## Humans are 99 per cent chimp – and evolving constantly



PHOTO: CHRISTOFFER REGILD

**H**umans continue to evolve. Natural selection – according to Darwin’s theories – has influenced more than 10 per cent of human genetic material over the last five million years. These are the findings of studies of more than 11,000 genes from 39 people and from chimpanzees. Researchers now also know which types of genes evolve the fastest.

“Despite a 99 per cent similarity between the entire genetic material, the so-called genome, of humans and chimps, the small difference turns out, as we know, to be quite significant in evolutionary terms. We have now identified the genes that we expect play a crucial role in human evolution. The fast evolution of certain gene sequences gives us an idea of which genes have undergone positive Darwinian selection – that is, genetic changes that have resulted in increased survival capacity,” explains Professor Rasmus Nielsen.

These ‘positive’ genetic changes have been passed on over generations.

### Interesting genes

Research shows that, among other things, genes involved in the immune system and semen and egg production have evolved at a particularly fast rate.

“But we have a long list of interesting genes that in the end can explain the huge evolutionary differences between humans and chimps,” says Professor Nielsen.

After 10 years of research in the USA, Nielsen is now a professor at the Bioinformatics Centre. He has worked with the company Celera Genomics and

Cornell University. Celera Genomics has focused on mapping the human genome, while Professor Nielsen and his colleagues at the Institute of Biology and at Cornell University have focused on the statistical calculations and analysis.

### Unexpected evolution

One of the researchers’ more surprising findings is that human genetic material contains a larger amount of harmful genetic changes, called mutations, than previously thought.

“Many of the harmful mutations appear to affect genes that determine the basic structure of cells. Individuals with these mutations have, on average, less chance of survival, and so we would therefore expect these mutations to be less common for each generation. This is what we call negative selection,” explains Professor Nielsen.

But new mutations occur in every generation, and Darwinian selection cannot always eliminate the harmful mutations fast enough. That is why genetic diseases such as muscular dystrophy and Usher’s Syndrome – the single most

common cause of deaf-blindness in the Western world – appear relatively often in the population.

“Human genetic material is fashioned in a complex interaction between negative selection, which eliminates harmful mutations, and positive selection, which promotes positive mutations. We are only just beginning to truly understand the fundamental processes that have been in play throughout the evolution of humanity,” says Professor Nielsen.

### Gateway to a new kingdom

The research findings increase the chances of linking the evolution of human genetic material directly to human diseases – one of the perspectives of research in the field of bioinformatics.

“We have a long way to go before we can predict, from the DNA code, which genetic mutations can lead to diseases. But these findings are a first step on the road to identifying the classes of genes that seem particularly susceptible to mutations.” ■

## The world's most cited

The University of Copenhagen is home to ten of the most cited researchers in the world, according to a list posted at [www.isihighlycited.com](http://www.isihighlycited.com). The list is based on how often colleagues cite researchers' publications, and includes a total of 28 Danish researchers. The ten most cited Danish researchers are:

**Claus Uffe Hammer**, Geosciences, Niels Bohr Institute

**John Renner Hansen**, Physics, Niels Bohr Institute

**John W Mundy**, Plant & Animal Science,  
Institute for Molecular Biology and Physiology

**Sigfus Johann Johnsen**, Geosciences,  
Niels Bohr Institute

**Per Bak**, Physics, Niels Bohr Institute (died 2002)

**Søren Johansen**, Economics/Business,  
Department of Mathematical Sciences

**Tom Michael Fenchel**, Plant & Animal Science,  
Institute of Biology

**Katarina Juselius**, Economics/Business,  
Department of Economics

**Nils Henrik Diemer**, Neuroscience,  
Department of Molecular Pathology

**Per Kragh Andersen**, Mathematics,  
Institute of Public Health

**26-27.1.** The *Religion in the 21st Century* Research Priority Area holds a conference entitled *Belief in God in Denmark*. 75 researchers from several different disciplines meet to discuss and map the expression and significance of belief in God in Denmark in the 21st century.

**1.2.** The 13th marine researcher meeting, organised by the Department of Geography, the Zoological Museum and the Geological Survey of Denmark and Greenland is held at the H.C. Ørsted Institute, attended by 250 scientists.

**1.2.** Space doctor, Associate Professor Peter Norsk, Department of Medical Physiology, starts the life sciences space research programme *Forskning på Rumområdet*. The Danish Research Agency has granted DKK 1.25 million to the programme, the objective of which is to ascertain how heart and blood circulation are affected by long-term weightlessness on the International Space Station. The research results will be applicable in the treatment of heart patients.

**3.2.** PhD student Michael Poulsen and Professor Jacobus J. Boomsma, both of the Institute of Biology, publish in the journal *Science* findings on fungus-cultivating leaf-cutter ants, which suggest that the fungus exploits the partnership with the ants for its own benefit, while the ants draw the short straw.

**4.2.** Assistant Professor Kresten Lindorff-Larsen, Institute of Molecular Biology and Physiology, publishes in the journal *Nature* groundbreaking research which shows that atoms in protein molecules move more than previously thought.

**8.2.** Assistant Professor Sylvia Cremer, Institute of Biology, publishes in the journal *Current Biology*, evidence that queen ants of the species *Cardiocondyla obscurior* prolong their lives by mating.

**11.2.** The Centre for Language Technology hosts the international Language Technology Symposium.

**12.2.** The mini-exhibition *Cold* opens at the Zoological Museum.



PHOTO: HANNE STRAGERZOOLOGICAL MUSEUM

**18.2.** Thomas Otbo and Jens Bay Christensen, both students of economics, receive the annual *McKinsey Prize* of DKK 10,000 for their presentation *The Equity Premium Puzzle: A Behavioral Finance Explanation*. On the same occasion, student of economics Mette Bach Treppendahl receives the *Champagne Prize* for her fascinating contribution *Skævvridning af uddannelsesvalget? (Distortion of choice in education?)*.

**21.2.** The Museum Tusulanum Press launches an electronic publishing project combined with advanced Internet bookshop – [www.mtp.dk](http://www.mtp.dk) – entitled *The media-independent text and electronic bookselling*.

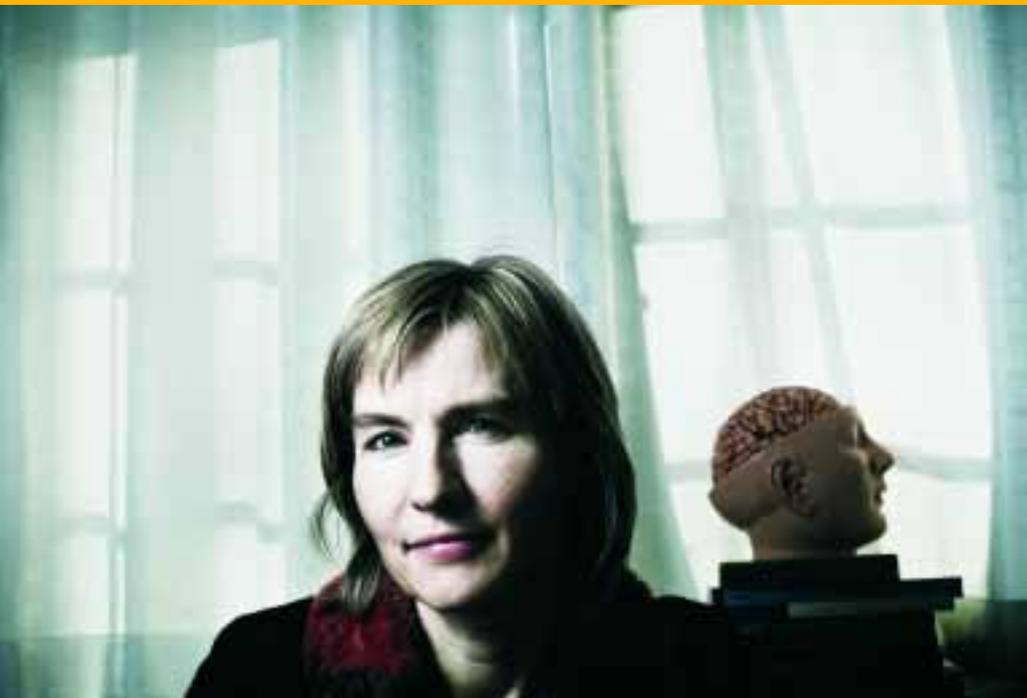


PHOTO: CHRISTOFFER REGILD

The landscapes of the brain can tell us the history of why we are as we are. Professor Gitte Moos Knudsen has been awarded a record-breaking grant for exploration of the brain's communication system.

## 40 million for exploration of the brain

**T**he majority of our brain is unknown territory for researchers. But with a grant of DKK 40 million from the Lundbeck Foundation, the Center for Integrated Molecular Brain Imaging (CIMBI) at the University of Copenhagen has the chance to go exploring. The funding will go to studying images of healthy human brains to gain a better understanding of why we are as we are.

It is not by chance that the Lundbeck Foundation chose to award the largest grant in the history of the foundation to brain research. New brain imaging techniques make it much easier for researchers to map the landscape of the brain. This grant has given Professor of Neurology Gitte Moos Knudsen, who will head the new research facility, a unique opportunity to shed light on some of the brain's mysteries.

"With more insight into how healthy brains function, we also gain a better understanding of why some people develop diseases of the brain, such as depression and memory difficulties," explains Professor Knudsen.

### Communication paths

It is the brain's communication system, the serotonergic transmitter system, which Professor Knudsen is most interested in. The brain consists of more than 100 billion nerve cells. In order for it to function as a complete system, the cells have to be able to communicate.

One of the most important communication paths for cells is transmitter systems, which send chemical substances from one nerve cell to another. In a way, the brain acts as a kind of telephone network with different telephone companies. Each company has its own standard currency: dopamine, glutamate and serotonin are the three most important currency systems – or signal substances, as Professor Knudsen calls them. In receiver cells, there is a kind of sim lock, which only the correct chemical signal substance can unlock to enable the cell to receive the message.

"These locks or receptors, which receive messages, are what we can see by using small amounts of radioactive tracers during brain scans," explains the researcher.

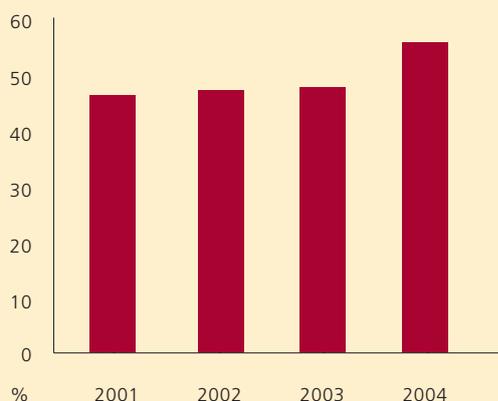
Researchers are constantly discovering new forms of communication between brain cells. Serotonin, dopamine, GABA and glutamate are some of the most important molecules in the brain. And we know that they are involved in a number of brain diseases.

### Mind images

But how do the number and activity of these receptors in the brain play a role in our behaviour, personalities and genes? This is one of the questions the centre director and the team of researchers at CIMBI will try to find an answer to over the next five years.

## External funding

Share of external non-government research funding\*



An increasing percentage of external research funding comes from non-government sources. These include funding from private foundations and organisations, the EU, companies in the private sector, counties and local authorities.

\* competitive funding, per cent of total external revenue

“Of course the money means that we can afford to have much more experienced researchers on our team, and that we will be able to test, on a much greater scale than otherwise, a large number of healthy people. We can scan 100 people now, as opposed to 15 before.”

The researchers’ studies until now have revealed that healthy brains show significant differences.

“Two people of the same gender and age can show very great differences in the number of receptors. You would think that the brain needs a fairly constant number, but that’s not the case. Our data show that it depends, to a great extent, on genetics. But the images also show that the structure and function of the brain depends on how we use our brain, for instance whether we are learning something new,” clarifies Professor Knudsen.

Brain research is not without controversy, and a panel of European citizens has debated the research of the future. They are concerned that brain research can lead to a diminished perception of what humanity is and cause us to focus too much on illness.

“I do not share the view that brain research is frightening. We just show things as they are. What’s frightening is what the research is used for afterwards. And that’s what we have to be aware of.” ■

For more information, visit [www.cimbi.dk](http://www.cimbi.dk).

- 24.2.** The University of Copenhagen holds a conference, *Freedom of speech and tolerance*, attended by international guest speakers from around the world. The conference is held consequent to the assault on a teacher from the Carsten Niebuhr Section in the autumn of 2004.



- 24.2.** An international research team led by Professor Michael Kühl, Biological Institute, publishes in the journal *Nature* the first description of unique bacteria’s habitat. The findings show that photosynthesis can occur in a range of previously unsuspected environments.
- 27.2.** The Department of Mathematics hosts the annual *Georg Mohr Competition* for upper secondary school students with an interest and aptitude in mathematics.
- 28.2.** The *Mikael Kristiansen Prize* of DKK 75,000 is awarded to economics student Asger Lau Andersen, mathematics and economics student Benjamin Falkeborg and economics student Lasse Holbøll West Nielsen, who will all be continuing their education in England at the London School of Economics and University of Cambridge, respectively.
- 28.2.** Rector Linda Nielsen and the mayor of Gentofte, Hans Toft, open at the Experimentarium a special exhibition on a CERN in partnership with the Niels Bohr Institute to celebrate the *World Year of Physics* and CERN’s 50th anniversary.
- 2.3.** Professor Hans Hertel, Department of Scandinavian Studies and Linguistics, receives the *National Press Club of Denmark’s Press Prize* of DKK 25,000 for his contribution to literary scholarship, criticism and social debate.
- 18.3.** Assistant Professor and Director of Medical Studies, Pernille Due, Institute of Public Health, is awarded the *Health Insurance Foundation’s research prize* of DKK 25,000 for her long-standing research into and documentation of the health and conditions of children and young people.
- 18.3.** The Carsten Niebuhr Section hosts a dialogue between nine Danish-resident imams and Rikke Hvilshøj, Danish Minister for Refugee, Immigration and Integration Affairs. The topic of the meeting is not religion, but integration. This is the first time that a Danish Government representative meets with the religious leaders of the more than 200,000 Muslims in Denmark.
- 30.3.** The Faculty of Law holds a retirement symposium for Professor Emeritus Ole Espersen entitled *Symposium*



PHOTO: CHRISTOFFER REGILD

## Tyran: in high demand

Professor Jean-Robert Tyran is much sought after abroad. But the star economist from Switzerland, who researches human behaviour, chose the Institute of Economics at the University of Copenhagen.

**I**t is not by chance that Jean-Robert Tyran is the first professor in experimental economics in Scandinavia – and based at the University of Copenhagen.

“The Institute of Economics was ranked as 15th out of 148 European departments in a study published in June 2005, so the research environment is good here. And I am particularly happy with the open-minded atmosphere,” explains Professor Tyran. Experimental economics is still a new field of research, and in many ways it goes against the grain of neoclassical economics.

“But after I came here, we’ve introduced experimental economics to students at the undergraduate level. It helps give the students a sense that economics is not just about mathematics and other abstractions, but about what people do.”

### No to the Netherlands and Switzerland

The 38-year-old economist has only been in Denmark for one year, but he has already said no to offers of professorships from the Netherlands and his home country of Switzerland.

One of the reasons he names for choosing the University of Copenhagen is the laboratory with computers that the Institute has happily set up for him. And then there are the students, who are both talented and motivated.

“The overall level of the economics studies in Denmark is high. The Danish students can compete with students all over the world, including the USA,” says the Professor.

And he speaks from experience. In connection with his PhD studies, Professor Tyran worked with Vernon Smith, the American economist who received the Nobel Prize for Economics in 2002. He has a doctorate from the university in Zurich and he has been a guest researcher in Amsterdam, Harvard, London, Lyon, Stockholm, Strasbourg, Paris and Vienna.

### Limited rationality

Experimental economics, which Professor Tyran subscribes to, has only existed for about 40 years. It is based on the fact that people are not always as rational as traditional economists

## Professor Jean-Robert Tyran

**Academic degrees:** PhD, Universität St. Gallen; Dr. oec. publ., Universität Zürich; Lic. oec. publ., Universität Zürich.

**Guest researcher at:** Université Paris I; Université Louis Pasteur; Université Lyon; Harvard University; University of Amsterdam; Stockholm School of Economics; London School of Economics; Institute of Advanced Studies, Vienna.

**Other positions:** Member of the editorial team of the *European Journal of Political Economy*. Research Fellow at the Centre for Economic Policy Research (CEPR), London, UK.

would have them be. The concept is called 'limited rationality'.

"We investigate what it means for a specific market if we do not behave in an entirely rational manner, but are only rational to a limited extent. Some people are selfish. Others are unselfish and still others possess both qualities. My question is how these social aspects influence economics," says Professor Tyran.

"Trust is one example of a social aspect that we can study experimentally. Trust is important in many situations that involve money. For instance, when we order food at a restaurant, we don't know beforehand whether the food is good or bad. But we trust that the restaurant will not serve rotten meat. In the short-term, the restaurant owner might turn a profit selling bad meat, because it's cheapest. But in the long-term, it can ruin his reputation and thereby his business."

These mechanisms are studied using a kind of role-playing in which test persons are asked to either be sellers or buyers. Professor Tyran can vary several factors, for instance the seller's reputation. And he can study the actions and choices of the buyers and sellers.

"Role-playing gives us an understanding of how we can best organise a market to achieve the highest efficiency and quality, and such that people will believe in each other. Research in economics is very useful for society, because if we can improve the efficiency of the market by just 1 per cent, it can result in billions for society," says the Professor, who sees himself working much more interdisciplinarily in the future:

"For instance, I'm currently looking into the possibility of collaborating with brain researchers. We are trying to find out if we can use brain imaging in economic research. I also really want to start working on large-scale experiments – experiments with at least 1,000 participants." ■

15 per cent of the scientific-academic staff employed by the University come from abroad.

on Human Rights – Positive and Negative Tendencies about human rights and the new International Criminal Court.

- 1.4. An international research team, including Associate Professor Jens Høiriis Nielsen, Department of Medical Biochemistry and Genetics, and Professor Thomas Mandrup-Poulsen and Senior Researcher Nils Billestrup from the Steno Diabetes Center, receives DKK 5.7 million from the *Juvenile Diabetes Research Foundation* for a research collaboration with scientists in Switzerland on how insulin-secreting cells in the pancreas can be regenerated with the aim of curing type 1 diabetes.
  - 3.4. Professor Erik A. Richter, Copenhagen Muscle Research Centre and the Institute of Exercise and Sport Sciences, is awarded in San Diego *The Edward F. Adolph Award* by *The American Physiological Society* for his groundbreaking research work in the regulation of muscular metabolism.
  - 11.4. Professor Niels Keiding, Institute of Public Health, takes up his post as president of the *International Statistical Institute*.
  - 13.-14.4. The *Body and Mind* Research Priority Area holds the *Annual Brain and Mind Lecture*, in which Professor Marc Raichle of Washington State University speaks on *The Brain's Dark Energy*.
  - 14.4. After years of working with ornamental plants, horticulturalist Bo Ivar Jørgensen and gardener Jørgen Damgaard, both with the Botanical Garden, have completed development of a patented technique for getting mistletoe to grow on houseplants.
- 
- PHOTO: BO IVAR JØRGENSEN
- 15.4. Professor Bjørn Quistorff, Department of Medical Biochemistry and Genetics, and Professor Niels H. Secher, Copenhagen University Hospital – Rigshospitalet, receive DKK 1.5 million from the *Lundbeck Foundation* for investigating *The brain's energy metabolism during physical activity*.
  - 15.4. Associate Research Professor Jean-François Perrier, Department of Medical Physiology, receives DKK 2 million from the *Lundbeck Foundation* for investigating the brain's complex network of signal paths.
  - 18.-24.4. The Geological Institute receives a full week's visit from a group of Danish eighth-graders on work experience, who are given an insight into research at the Geological Institute, and the Geological Survey of Denmark and Greenland, as well as research and communications activities at the Geological Museum.
  - 25.4. Hytronics Aps is established as the first nanocompany under the auspices of the University of Copenhagen. (See page 30).

# Following the progress of language



PHOTO: CHRISTOFFER REGILD

At the University of Copenhagen, a team of language researchers, headed by Professor Frans Gregersen, is investigating how and why the spoken-language of the Danes has changed over the last 100 years. The Danish National Research Foundation has supported the project with DKK 26 million.

**T**he Danish National Research Foundation's Centre for Language Change in Real Time – normally referred to as the Centre for Language Change – opened in September. Its first assignment is to analyse interview material from a number of old spoken language studies and to conduct new interviews with as many of the same participants as possible. About 500 Danes, living all over the country, are to be recorded. The enormous amounts of data make the research project completely unique.

“No other countries have mapped language change as thoroughly as we do. With this project, Denmark will be one of the most well-described language communities in the world,” Frans Gregersen explains with enthusiasm.

## Exceedingly simple

According to Professor Gregersen, the actual research project is very simple.

“The goal is to investigate how people change their language over time. Anyone can see that the language has changed – the question is how and, especially, why.”

Once the large amounts of data have been fully standardised, the researchers can analyse the material acoustically, investigate the meaning of words and sentences and the struc-

## New centres for basic research

The University of Copenhagen plays host to or participates in a number of centres for basic research, which are financed by the Danish National Research Foundation. The centres conduct research at a high international level.

In 2005, eight centres were established – in addition to the Centre for Language Change in Real Time:

- Danish Arrhythmia Research Centre
- Centre of Inflammation and Metabolism (in collaboration with Copenhagen University Hospital – Rigshospitalet)
- Dark Cosmology Centre
- Center for Models of Life
- Center for Molecular Movies (in collaboration with the Technical University of Denmark and Research Centre Risø)
- Center for Social Evolution
- Centre for Textile Research
- Nordic Centre for Earth Evolution (in collaboration with the University of Southern Denmark)

ture of the sentences. Then they can for instance determine which words are used by which age groups. The data goes back to the 1970s. But another objective of the project is to describe the progression of the Danish language community from 1900 to 2000 using radio archives and dialect studies. The researchers want to examine the influence urbanisation, immigration, emigration and changes in approaches to up-bringing have had on the language.

“Denmark is an ideal laboratory for studying how a country has changed from an agricultural society to a post-industrial language community. It will be interesting, for instance, to examine the influence the new family structures, with two parents working outside the home and the children at institutions all day, have had on language change – perhaps the friendship group has become linguistically more important than the nuclear family,” clarifies Professor Gregersen.

### Commercial aspects

When Professor Gregersen talks about the Centre’s field of research, he sometimes meets pragmatists who ask how this kind of research can be used.

“It’s all about finding out what kind of language Danish is, what kind of language community Denmark is and why Danish seems to have changed more and faster than both Norwegian and Swedish. The most important way the humanities have contributed to society is through education, that is, MAs and BAs. And it’s very important for teaching both reading and writing that MAs in Danish know something about both spoken and written language. It’s odd that we know so much about the written language without having similar knowledge of the spoken language, also because the spoken language is much older than the written language,” says the Professor.

The only commercial aspect of the research project is that the material might be able to form a basis for developing a speech-to-text system, so we can talk directly to our computers.

“If we are to talk to our computers, without having to speak like a book, we need to have a good set of data for the system – we’ll have that now,” says Professor Gregersen, leaving a door open for potential partners who can see opportunities in following the progress of language. ■

- 25.4. *The Psychological Review* publishes an article by Professor Claus Bundesen, Assistant Professor Søren Kyllingsbæk and research assistant Thomas Habekost, all of the Department of Psychology, on their theory which explains attentiveness in purely neurophysiological terms.
- 1.5. Two Italian researchers, Patrizia D’Ettore and Francesco Sannino, begin their work at the Biological Institute and the Niels Bohr Institute, respectively. They have each received a *Marie Curie Excellence Grant* for their work at the University of Copenhagen.
- 1.5. The Geological Institute, in conjunction with the other institutions in Geocenter Copenhagen, publishes the first issue of the popular science magazine, *GeoViden*. The magazine is richly illustrated and is aimed at geology and geography teachers, especially at upper secondary school level, and a general readership.
- 3.5. Associate Professor Johnny Kondrup, Department of Scandinavian Studies and Linguistics, and Professor Niels Keiding, Institute of Public Health, are admitted as members of *The Norwegian Academy of Science and Letters* at the Academy’s annual meeting.
- 4.5. Associate Professor Duur Aanen, Biological Institute, describes in *Current Biology* how termite farming probably derives from the African rainforest.
- 6.5. Professor Erik A. Richter, Institute of Exercise and Sport Sciences, and Professor Bente Klarlund Pedersen, Clinical Institute of Internal Medicine, head up a new European research project which, with an EU grant of DKK 94 million, is to explore the molecular relationship between physical activity and health.
- 7.-8.5. The Faculty of Humanities holds the *Humanities Festival* with approximately 50 different lectures and a host of other interesting offerings. This year’s topics range from *Our Greece* through *To Travel is to live – and survive* to *Violence and death in computer gaming*, and much more.
- 10.5. Jens Vilstrup Johansen is the first graduate in bioinformatics from the Bioinformatics Centre.
- 11.5. Nine researchers from the Faculty of Health Sciences receive a total of DKK 15.3 million from The Danish Cancer Society for 10 different research projects.
- 12.5. The University of Copenhagen takes part in the *Day of Research*. (See pages 38 and 45).



- 12.5. Bente Klarlund Pedersen, Clinical Institute of Internal Medicine, receives the *Award for Outstanding Public Outreach 2005*. (See page 41).

# Jordan's pyramids

The University of Copenhagen is assisting in the exploration of Jordan's answer to Egypt's pyramids, the famous sandstone monument *Al-Khazneh* – The Treasury. And that is a real declaration of trust.

**L**awrence of Arabia called the hidden desert city of Petra in Jordan “the most beautiful place in the world.” Not because of the ruins, which were carved out of the sandstone cliffs, but because of the colours of the cliffs: red and black with bands of green and blue flowing like choppy waves across the walls and ceilings. It was also because of the amazing gorge – the entrance to the city – so narrow in some places that a camel can barely pass through.

Archaeologists from the University of Copenhagen have been active in the area surrounding Petra for several years. And in 2005, their efforts culminated in an invitation, along with University forensics experts, to take part in the exploration of Petra's main attraction – the 40-metre high and very famous sandstone temple *Al-Khazneh*.

## Do you know a bone expert?

In the high season, thousands of tourists flock to the ruins of the desert city, which the Nabataeans built in the centuries around the birth of Christ and which, today, is declared a UNESCO world heritage site.

It was not until the war in Iraq stemmed the stream of tourists that the Jordanians were able to excavate the area in front of the national monument. This led to an astounding discovery because the area was situated four-seven metres above the original surface. A stone staircase led up to the temple's perfect symmetry, and on both sides of the stairs there was an entire storey with forgotten tombs and skeletons previously undiscovered by archaeologists.

At that time, Ingolf Thuesen, an archaeologist at the

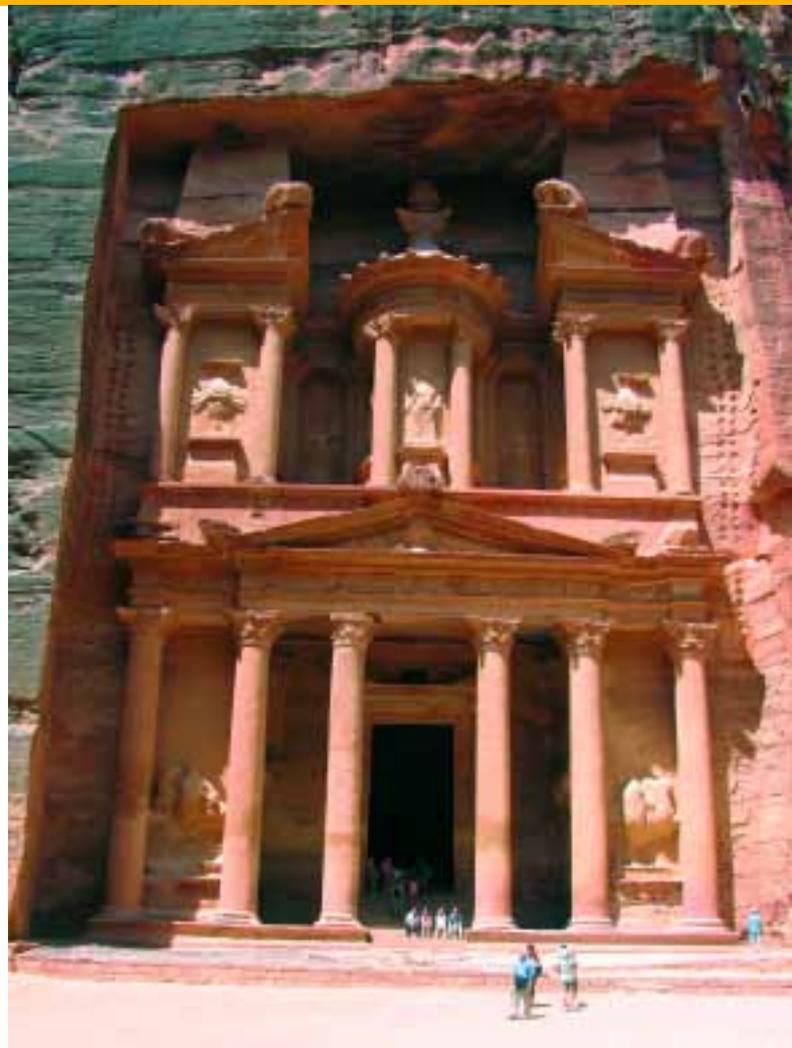


PHOTO: DITTE MARIA SØGAARD

Department of Cross-Cultural and Regional Studies, was working at a stone-age excavation nearby. And forensic anthropologist Neils Lynnerup was visiting from the Institute of Forensic Medicine to assist with the analysis of some rare bone finds. At the same time, the director of the Petra Archaeological Park, Suleiman Farajen, was in need of a bone expert. He invited the two researchers to the Petra Museum to inspect, among other things, a 2,000-year-old cranium.

“It is a man, 40-60 years old. It looks like he suffered from some sort of degenerative arthritis,” Professor Lynnerup quickly ascertained. And so the path was laid for collaboration.

## A declaration of trust

Professor Lynnerup was permitted to take the Nabataean cranium home to the lab at the Institute of Forensic Medicine in order to study it and reconstruct its face – a declaration of trust equivalent in a way to a couple of foreign researchers being given the bones of Gorm the Old to take home.

This trust was heightened in 2005 when the Jordanians opened the last of the forgotten tombs in front of *Al-Khazneh* and invited the Danish researchers to help study the tomb

## International partnerships

The University of Copenhagen participates in a number of partnerships, including:

*Association of American Universities (AAU)*  
*Academic Cooperation Association (ACA)*  
*The Compostela Group of Universities, Santiago*  
*The Crown Princess Mary Scholarship*  
*Danish Institute at Athens*  
*Danish Institute in Damascus*  
*European Association for International Education (EAIE)*  
*European Centre for Chinese Studies at Peking University*  
*European Higher Education Society (EAIR)*  
*European Master's Degree in Human Rights and Democratisation*  
*European University Association (EUA)*  
*FEDORA Educational Guidance & Counselling Group*  
*Nordic Centre at Fudan University, Shanghai, China*  
*International Alliance of Research Universities – IARU*  
*International Association of Universities (IAU)*  
*International Association of University Presidents (IAUP)*  
*IMHE/OECD (International Management of Higher Education)*  
*Nordic Centre India, Delhi*  
*Association of International Educators (NAFSA)*  
*Nordplus Program, The Nordic Council of Ministers*  
*Nordic Association of University Administrators (NUAS)*  
*Sasakawa Young Leaders Fellowship Fund (SYLFF) in cooperation with the Tokyo Foundation*  
*SOCRATES/Erasmus Program, EU*  
*Network of Universities from the Capitals of Europe (UNICA)*  
*University of California "State System Agreement" (9 campuses)*  
*University of North Carolina "State System Agreement" (18 campuses)*  
*Øresund University*

finds. Professor Thuesen and Marie-Louise Jørkov, from the Faculty of Health Sciences, assisted with the excavation, and a third expert was hastily flown in to Petra from Copenhagen to attempt to extract DNA from the 2,000-year-old bones.

The bone finds have since been covered again, while seven crania from a neighbouring tomb were sent to Copenhagen, where they are now being studied under the leadership of Professor Lynnerup. Professor Thuesen says:

“The research methods of the natural sciences have provided us with very detailed portraits of people and populations that complement the archaeological work beautifully. Archaeology has, in fact, developed into a very interesting interdisciplinary field, where many academic disciplines cross paths.

The collaboration with the Jordanians may, in future, also include bone conservation and exhibitions of tomb finds from the site. ■

- 13.5.** The *Novo Nordisk Foundation* donates DKK 15 million to promote collaboration between medical researchers and bioinformaticians in gene regulation research. The project is headed by Professor Anders Krogh, Bioinformatics Centre, and is being conducted in close collaboration with Professor Finn Cilius Nielsen, Department of Diagnostic Radiology, and Professor Kristian Helin, Director of the *Biotech Research and Innovation Center (BRIC)*.
- 18.5.** Associate Professor Oana Ciofu, Department of Medical Microbiology and Immunology, receives an award of DKK 400,000 from the *Hede Nielsen Family Foundation* for research into the prevention of bacterial resistance to antibiotics.
- 18.5.** The Tech Transfer Unit's *EXCITE* programme is selected by The Danish Board of Technology to receive DKK 5 million for commercialisation of their research results in collaboration with the consultancy firm Wiborg Aps, Novo Nordisk A/S, Symbion Management and the University of Glasgow's commercialisation office.
- 18.-19.5.** The Department of Political Science holds an international conference on *Constitutionalizing World Politics*.
- 19.5.** Associate Professor Milena Penkowa, the Department of Medical Anatomy, receives from the *IMK General Fund* a private donation of DKK 5.6 million for research into brain disease.
- 22.5.** The University of Copenhagen marks International Biodiversity Day with free admission and special guided tours at the Zoological Museum and the Botanic Garden, among others.
- 23.5.** At only 33 years of age, evolutionary biologist Eske Willerslev, at the Niels Bohr Institute, becomes the youngest professor at the University of Copenhagen.

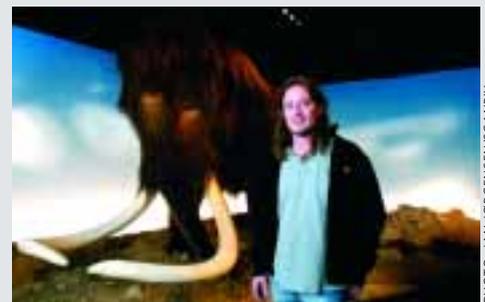


PHOTO: JAN JØRGENSEN/SCANPIX

- 24.5.** The University's fourth Research Priority Area, *Europe in Transition*, is set in motion through two seminars, opened by Rector Linda Nielsen. They focus on *Identity and cultural development in Europe* and *Democracy, law and values in Europe*, which are also the titles of the RPA's two interdisciplinary themes.
- 25.5.** Post-doctoral student Dorte Martinsen is awarded the *Department of Political Science's Teaching Award* of DKK 20,000.
- 29.5.** For the first time in its 525-year history, the University of Copenhagen's post of Rector is advertised. Advertising the appointment marks a change in the system of government, in which managers at all levels are no

Hans von Knut Skovfoged will receive both an MA in humanities and a certificate from the Danish National Academy of Digital Interactive Entertainment when he completes his studies in a year's time. This combination should pave the way for his life's dream: to become a computer game designer.

# Human computer games

**I**t is 8am Monday morning in the spacious canteen of the Faculty of Humanities' new buildings in Ørestad North. As the first guest of the week, the 28-year-old IT and media-science student, Hans von Knut Skovfoged, sits wide awake and with dishevelled hair in the middle of the big hall and its rows of waiting tables and chairs. With his special combination of studies, he has set a sure course towards a future in the fast-growing computer game industry.

## The interactive academy

Skovfoged studies at the Department of Media, Cognition and Communication, but he is also enrolled at the Danish National Academy of Digital Interactive Entertainment. The Academy is a collaboration between the University of Copenhagen, the University of Aarhus, Aalborg University, the IT University of Copenhagen, the Technical University of

Denmark, Danmarks Designskole, the National Film School of Denmark, the Animation Workshop in Viborg and IT University West. The purpose of the Academy is to educate developers and producers of computer games in order to develop a common language and common understanding of what computer games are. The Academy also builds bridges to the interactive entertainment industry and helps carry out academic and industrial projects.

The students all follow a common curriculum and collaborate on productions, giving them the opportunity to learn from the other professions that are also involved in the making of computer games. They complete the course of study they are working on at their own institutions, then, after completing the course of study at the Academy, they also receive a certificate stating they have completed the programme.

“As media-trained liberal arts students at the University of

PHOTO: CHRISTOFFER REGILD



Copenhagen, we're good at analysing and operationalising our theoretical knowledge. But we could also be better at applying our knowledge in practical solutions. That's where the Academy plays an important role, when it comes to games, because there we meet people with other educational backgrounds – like programmers and animators,” says Skovfoged.

### A degree with a future

At the moment, Skovfoged is doing a traineeship as game designer at the Danish Broadcasting Corporation (DR), located in a suburb to Copenhagen. But in one year's time, he will be able to walk just a couple hundred metres along the canal from the new University buildings to the new DR buildings. And that could be where Skovfoged finds himself working once he has received his degree – because his dream is to work for the Danish Broadcasting Corporation as a game designer. A job in a software development company big enough that he can work with artificial intelligence in computer games is also on his wish list. Recently, he formed a computer game development company along with four other students. The other backers of the new company are a programmer from the Department of Computer Science, two from the IT University of Denmark and a marketing person from Copenhagen Business School. In spring 2006, they will be launching a new portal for mobile telephone games.

“Ever since I was a kid, I've been captivated by the idea of playing and developing role-playing games, board games and computer games. I've since worked as, among other things, a radio producer and music festival producer, so it made sense to enrol at the University to get a much more theoretical foundation. During my studies, I have especially been interested in how people use or come together around media like computers, the Internet and mobiles. I did my BA project on how people chat over the Internet. In my graduate studies, I've focused on how computer games can simulate socialising with the user. The topic of my MA thesis is how artificial intelligence can make games more riveting and unpredictable,” he explains.

In late summer 2006, Skovfoged, armed with his MA degree and his Academy certificate, expects to be ready to develop interactive entertainment for the seemingly insatiable market. ■

See more at the Danish National Academy of Digital Interactive Entertainment – DADIU at [www.dadiu.dk](http://www.dadiu.dk)

longer elected, but are appointed by virtue of their professional qualifications.

- 30.5. PhD student Malene Ringkjøbing Jensen, Department of Chemistry, receives the *Danish NMR Talent Prize* for her spectroscopic studies of proteins.
- 31.5. The University's Biological Institute, the Zoological Gardens and the Royal Veterinary and Agricultural University initiate a new collaboration on the *ZooWild Center for Zoo and Wildlife Health*, which will focus on exotic animal welfare and disease.
- 31.5. Associate Professor and Head of the Department of Pharmacology, Erling T. Møllerup, receives a donation of some DKK 1.4 million from the *Lundbeck Foundation*.
- 2.6. Jakob Holck, the Department of Computer Science, receives the *Danish Society for Computer Science prize for the year's best computer science thesis*. He has developed a mathematically advanced technique for simulating the movement of articulated bodies. The technique renders the movement of figures in a computer game more realistic and also has applications in medicine and engineering science.
- 3.6. Erik A. Richter receives the *Citation Award* from the *American College of Sports Medicine* at its annual meeting in Nashville, Tennessee for his groundbreaking research in muscular metabolism.
- 3.6. The *Danish Natural Science Research Council* holds an interdisciplinary centre day at the Geological Department, at which the heads of the four distinguished scientific research centres, the Centre for Integrated Geophysical Research, the Center for Structure and Function of Biological Macromolecules, the Centre of Macroecology and the Centre for GRID Computing present their current research projects.
- 3.6. The Centre for African Studies, in collaboration with the Danish Institute for International Studies, the Danish Foreign Ministry and the African ambassadors in Denmark, holds a seminar entitled *The New Partnership for Africa's Development – Hopes, Ambitions and Political Reality* to discuss how the African leaders themselves can assist in resolving Africa's crisis.
- 3.6. The Centre for Clinical Training is inaugurated through a collaboration between the Faculty of Health Sciences, Copenhagen University Hospital – Rigshospitalet's Clinical Skills Laboratory and Copenhagen Hospital Corporation's Postgraduate Medical Institute.
- 6.6. Erik A. Richter, Institute of Exercise and Sport Sciences, receives DKK 2.1 million from the *Lundbeck Foundation* for the project *Detection of intracellular signal paths in muscles*.
- 8.6. The Department of Chemistry is awarded DKK 2.8 million by the *VILLUM KANN RASMUSSEN FOUNDATION* to establish Denmark's first advanced smoke chamber facility for studying atmospheric chemical problems.



PHOTO: CHRISTOFFER REGILD

## Superintendent and journalist in the classroom

Police officers, social workers, prison guards, SSP workers (School-Social workers-Police partnership) a consultant physician and a journalist. The applicants came from all walks of life and demand was high for the 25 available spots in the new Diploma Programme in Criminology at the University of Copenhagen.

**S**omething of a police convention – that is how you could describe the new Diploma Programme in Criminology on offer for the first time in September. A total of seven Danish police officers were accepted to the course.

One of them is Torben Randrup, police superintendent in the Crime Prevention Unit in Copenhagen:

“We’ve already learned a lot of things that we can put into practice. We’ve learned how to conduct a scientifically based study by involving, among other things, test and control groups. And we’ve prepared a proposal for a study of the police department’s crime prevention efforts in the schools,” says Randrup, who feels the programme is extremely relevant for police officers.

“At the Crime Prevention Unit in Copenhagen, we have 13 people who visit every class in the city every year to talk to the pupils about alcohol, drugs and similar issues. That’s 13 man-

years at approximately DKK 300,000. But we’ve had a hard time measuring the desired effect. As police officers, we don’t use a scientific approach when we evaluate our projects. But we’re going to now,” says the superintendent.

Randrup’s colleagues also feel a change.

“They say that I’ve started to say some weird things,” laughs Randrup, who is now more interested in statistics and much more critical of new studies than in the past. Now he insists on looking at the study material and drawing his own conclusions, he explains.

### A better journalist

The programme benefits more than just the professions that work with crime or crime prevention. Linette Jespersen, a crime journalist with the popular Danish daily BT, is following the diploma programme so she can give the newspaper’s

## New continuing education

The diploma programme in criminology is the first of its kind in Denmark. It is open to anyone who works with crime or crime prevention in Denmark. The programme was established in collaboration with the Copenhagen College of Social Work.

Other new continuing education programmes in 2005:  
Master in Cross-Media Communication

Future continuing education programmes (2006):  
Master in Anthropology and Welfare  
International Master in Mediation and Conflict Resolution – an international version of the popular Master in Conflict Resolution

For more information visit [www.ku.dk/kompetence](http://www.ku.dk/kompetence)

readers more nuanced and trustworthy stories. The objective is to make the paper serious enough that it can lay out on the coffee table in front of the children. And the recipe is simple: less blood and better research.

Even though the course has only been underway for one semester, Jespersen already feels that she has benefited from the teaching:

“I’ve gained more insight into my focus area and I’ve become more critical of the reports and studies that land on my desk. And now I also know where to search for relevant background information when researching a story. I’m simply becoming a better journalist,” says Jespersen. Although it is hard work being back in the classroom,

“When I go home after class, I’m exhausted. But I also get new input and inspiration, and I feel a little wiser every time. And I find myself full of optimism and satisfaction, and that makes it more fun to go to work afterwards,” she says.

## Good interdisciplinary approach

Jespersen also finds the course’s interdisciplinary approach very rewarding.

“We gain insight into the methods and issues the other professions work with. We understand each other better and acquire more nuanced knowledge. It also helps break down some of the misconceptions we professionals have about each other,” she says. The teachers are also satisfied:

“Things are going great. Our students are positive and committed and share their own experiences. They also say that they have benefited from putting practice into a theoretical framework,” says Associate Professor Lars Holmberg, who teaches the diploma programme along with Professor Flemming Balvig. ■



- 9.6. Crown Princess Mary presents the University of Copenhagen’s *Crown Princess Mary Scholarship* to two Australian students, Pia Akerman and Andrew Fleming, from the Universities of Sydney and Adelaide, respectively. They each receive DKK 10,000. (See page 49)
- 10.6. Professor Hanne Hollnagel, the Research Unit of General Practice, receives the *Magda and Svend Aage Friederich Memorial Grant* of DKK 100,000 in recognition of having built up a productive general practice medicine research environment in Copenhagen.
- 10.6. The journal *Science* publishes in its electronic edition an article by three researchers from the Niels Bohr Institute and the Danish National Space Center in collaboration with an American researcher. The research team used magnetic satellite data to shed light on the conditions below the Antarctic icecap.
- 10.6. Assistant Professor Kirsten Caesar, Department of Medical Physiology, receives the international *Niels Lassen Award* for research in the brain’s energy metabolism. The prize consists of DKK 10,000, a medal and the opportunity to give a lecture to an international research forum.
- 13.6. The cover of the journal *Nature* features an article on the structure of amyloid fibres, which are involved in a wide range of diseases, including Alzheimer’s and Creutzfeldt Jakob disease, both of which affect the brain. PhD student Anders Ø. Madsen, Department of Chemistry, is one of the researchers behind this new knowledge.
- 13.6. Ole John Nielsen, Merete Bilde, Matt Johnson and Kurt Mikkelsen, all of the Department of Chemistry, receive DKK 7.4 million over three years to set up and run the *Copenhagen University Center for Atmospheric Research*.
- 15.6. PhD student Jes Winther Hansen, Institute of Economics, receives at a ceremony at the Carlsberg Academy the *Tuborg Foundation Prize in Business Administration 2005* of DKK 150,000 to study at the University of California, Berkeley, USA.
- 16.6. The *BioCampus* Research Priority Area holds the *Bioetik tak! - Men hvordan? (Bioethics, please! – But how?)* conference in collaboration with the interministerial [www.biotik.dk](http://www.biotik.dk) initiative.
- 17.6. The *McKinsey Prize* of DKK 10,000 for the best short economics essay submitted at the Institute of Economics in autumn 2005 is awarded to economics student Duy Thanh Huynh for the presentation *Human Capital Investment and Labor Supply Effects of Unemployment Insurance*. On the same occasion, Henrik Pedersen and Jørgen Johannesen, both economics students, receive the *Champagne Prize*.

"I fell in love on my first day," says 23-year-old Fabrizio Loce-Mandes, who praises the close bonds among the international students at the University of Copenhagen. He is an example of the growing number of international students that the University attracts.

# International enchantment in Copenhagen

**I**f you meet an Italian walking along Nørrebrogade staring at your feet, do not be alarmed. It is probably just Fabrizio checking out your shoes:

"You can learn a lot about people by looking at the shoes they wear. A woman with gold shoes is totally different from someone like me with worn-out trainers. People might think I'm a little crazy. I just like to observe how people live."

Fabrizio Loce-Mandes from Perugia in Italy studies anthropology at the University of Copenhagen. As a student on the Sokrates/Erasmus exchange programme, which brings approximately 600 European students to Denmark every year, he has so far studied for one semester in Copenhagen. And it will not be the last.

"Conditions for international students in Copenhagen are very unique. We are very close, and there are great opportunities for experiencing things and meeting new people, because everything is close by."

He calls it world-class that the University manages to attract

so many international students. According to Fabrizio, when a young European chooses a university today, the University of Copenhagen often wins over cities like London and Paris. Last year, the University of Copenhagen attracted 1,357 new international students. That is an increase of 63 per cent since 2000.

## Friends for life

Fabrizio is close friends with 10-15 other students. They study, party and travel together, and are in many ways an extended family. They have even been on a road trip through Denmark together, from Møns Klint to Skagen.

"A couple of us have actually gotten tattoos as a permanent memento of the time we spent together. The best thing about Erasmus is that you make friends for life. The worst is that there comes a day when you have to say good-bye."

Fabrizio's interest in anthropology began with the Italian comic book hero Martin Mystère. The hero who travels the globe in his battle for justice, does field work that in many ways resembles anthropological studies:

"It's about studying life. Without saving the world, I kind of do the same thing here when I observe the people around me. How do the Danes celebrate Christmas? How do they drink beer? Why do they wear such silly shoes? I'm very fascinated by the way the Danes live."

Like other anthropologists, Fabrizio writes down his observations in a journal, which is also a kind of scrapbook of his experiences in Denmark. It contains, among other things, his thoughts on the Danes' love of bikes:

"There are bikes for kids, bikes for



PHOTO: CHRISTOFFER REGILD

transporting things, bikes without gears, bikes for the handi-capped. And everyone rides bikes – every day. So now I got myself an old bike,” says Fabrizio and continues:

“I love it so much, that I cried when it was stolen at the University. Luckily it wasn’t very hard to find, even though the thief had thrown it in the canal. I had painted it orange,” says Fabrizio, who despite the cold of winter jumped in the water to fish it out.

### Nordic gods

At the University of Copenhagen, Fabrizio is also following a few courses offered especially for Erasmus students. One of them is Nordic mythology, which reminds him of the stories about Thor, Odin and the other gods that his mother read to him as a child.

One of the themes in mythology is “enchantment” – something that the comic book hero Martin Mystère was also an expert on. Enchantment is the word Fabrizio uses to describe being an international student at the University of Copenhagen.

“I have become enchanted in that I, like the Danes, enjoy being able to walk safely down the street at night and jumping into the cold water. And one thing is certain: I’m taking my orange bike back to Italy with me.” ■

## Popular university

More and more students from abroad are choosing to study at the University of Copenhagen. In contrast, the mobility of Danish students has dropped.

No. of students	2002	2003	2004	2005
Incoming	730	756	924	1.357

No. of students	2002	2003	2004	2005
Outgoing	732	803	768	722

- 21.6. Professor Jens Als-Nielsen, Niels Bohr Institute, receives DKK 25 million from the *John and Birthe Meyer Foundation* to procure a so-called Compact Light Source for improving x-ray tomography, which is used in hospitals and nanomedical research.
- 21.6. With support from the University of Copenhagen and the Danish Center for Scientific Computing, chemists, physicists and biologists with a need for extreme computing power join forces to purchase Denmark’s largest supercomputer.
- 21.6. Associate Professor Emeritus Torben Wolff, Zoological Museum, receives the first *Anton Bruun Medal*.
- 22.6. Student of economics Julie Engell is the first economics student to receive a scholarship from the *Scott Gønge Virginia Fellowship Fund* of USD 15,000 to study at the Darden School of Business at the University of Virginia, USA. The *Scott Gønge Virginia Fellowship Fund* was instituted by Lisbeth Løkke and Scott Gønge.
- 30.6. Founder of Microsoft, Bill Gates, grants DKK 23 million from his *Grand Challenges in Global Health* fund to Professor Thor Theander, Department of Medical Microbiology and Immunology and Dr Lars Hviid of the Clinic for Infectious Diseases at Copenhagen University Hospital – Rigshospitalet. The money will be used for research into an anti-malarial vaccine, which will be able to save the more than 3,000 children who die of malaria each year.
- 1.7. The Geological Institute participates in the *Integrated Ocean Drilling Program*. The projects include international geological surveys of the ocean floor using one of two drilling vessels or a mission-specific platform. IODP is a continuation of the *Deep Sea Drilling Project* and *Ocean Drilling Programme*, which, through exploration of the ocean floor, revolutionised our view of Earth’s history and its dynamic processes.
- 1.7. Professor Michael Kjær, Department of Medical Physiology, Associate Professor Mogens Holst Nissen, Department of Medical Anatomy and Professor Finn Diderichsen, Institute of Public Health, receive grants of more than DKK 10 million each from the *Danish Research Agency* for the creation of new schools of research.
- 7.7. Professor Elsebeth Lynge of the Institute of Public Health receives DKK 6.2 million from *The Strategic Research Programme for Welfare Research* to assess the effects of specific welfare efforts.
- 15.7. Professor Poul Erik Petersen, Institute of Odontology, is appointed *Knight of the Republic of Madagascar* in recognition of the School of Dentistry’s 15-year-long work building its research capabilities.
- 29.7. Crown Prince Frederik, at a ceremony at Amalienborg, presents a scholarship from the *Crown Prince Frederik Fund* to postgraduate student Jacob Gerner Hariri, Department of Political Science, for one year’s study at the John F. Kennedy School of Government on Harvard University in Boston, USA.



PHOTO: HUMANIST

Professional career guidance counsellors ease the transition from student life to working life. Traineeship programmes and a panel of business people are some of the tools.

# The professionals

**T**he road from cuneiform and cultural analysis to a job in the private sector can be long. And there is a big difference between a life with plenty of time for each essay and a life with changing assignments, tight deadlines and a faster pulse. This may be why many new graduates, especially from the humanities, are often unemployed for a stint before finding their way into the labour market.

But now something is being done about it. The universities in Denmark are required to offer students professional career counselling designed to ease the transition from student life to working life. With career counselling, universities are now expected to show an interest in whether their graduates actually find jobs. The career counsellor's job is to strengthen traineeship programmes and transition schemes and generally prepare students for life after their last examination.

## Economies of scale

One of the new professional career counsellors is Johannes Riis from the Department of Media, Cognition and Communication. He is an associate professor in film studies and shares the job as career counsellor with Niels Holtug, associate professor in philosophy. The Department's new joint student and career counselling service is manned by Riis and Holtug, an international guidance counsellor or the academic counsellors from the Department's four disciplines: Film and

Media Studies, Education, Philosophy and Rhetoric.

"Student guidance has been professionalised because there are now more hours distributed among fewer counsellors. And, of course, there are economies of scale to be gained from having all the counsellors gathered in one centre. For instance, the four academic counsellors no longer have to develop four separate courses in study techniques, if Rhetoric already has one that works. Instead, you can take the course and multiply it by four, freeing up planning resources for other tasks," explains Riis.

## Shift in mindset

Neither Riis nor Holtug has ever worked outside the walls of the University. But Riis does not consider that a problem:

"It's not how many jobs you've had outside the University that's important. What's important is that we've seen people complete their studies and find jobs, and that we have a large network of people outside the institution. Moreover, we have a good understanding of the organisational culture at the University, and that is an advantage with the shift in mindset that is taking place. You can look at career counselling as an expression of a new awareness of the fact that you cannot allow yourself to view the University's programmes as abstract entities detached from the labour market," he says and continues:

"There are only a few professionally oriented degree pro-

grammes. And if your ultimate goal lies beyond the classroom and the University, there hasn't been, until now, any guidance in how to get there."

### Business Council

One of Holtug's and Riis's initiatives is the establishment of a Business Council comprising business people who studied at the Department of Media, Cognition and Communication. The initial purpose of the Council is to create traineeships for the Department's students, which will hopefully lead to jobs for even more graduates in the long term. As Riis explains:

"The Faculty already organises 'almost-a-graduate' courses to train students in job search and interview techniques and to prepare them for the principles they will be evaluated on in the labour market. But this comes very late in a course of study. We want students to think about these things at an earlier stage, and maybe also free themselves of some of their pre-conceptions about the business community. For many students, the University is the only world they've known after 20 years in the educational system."

With the Business Council and other tools for networking with the business community, it should now be easier for students to obtain real knowledge and experience from other contexts. Riis sent out invitations to participate in the Business Council two weeks ago:

"Everyone has enthusiastically said yes. Our alumni are very positive about the idea of being used as resources, perhaps because it is something they would have found useful as students." ■

## New structure for student counselling

In 2005, the University of Copenhagen introduced a new focus on quality assurance and competency building in the area of career counselling. Counsellors from every faculty and from the Central Career Counselling Services are to take a diploma-level counsellor training course in order to ensure that the University's students are better prepared for entering the workforce. At the same time, the 35 student counselling services at the Humanities have been combined to form 6 Guidance Centres with a permanent staff of counsellors – departmental counsellors – responsible for career guidance, traineeship assistance and contact with the business community.



- 1.8. The Faculty of Social Sciences acquires its own seal.
- 1.8. Asian Studies Researcher Cynthia Chou, Department of Cross-Cultural and Regional Studies, receives DKK 100,000 from *The Asia-Europe Foundation* for her conference proposal *Voices of Islam in Europe and Asia*. The prize is to finance a conference in January 2006 at Walailak University in Thailand.
- 1.8. The Departments of Anthropology, Political Science, Psychology and Sociology move into the old municipal hospital, to be named *Centre for Health and Society*.
- 7.-9.8. *The Second Sino-Nordic Nordic Women and Gender Studies Conference – Gender and Human Rights in China and the Nordic Countries* is held in Malmö as a collaboration between the Nordic Institute of Asian Studies at the University of Copenhagen, Fudan University Nordic Centre in Shanghai and Malmö University.
- 13.8. Associate Professor Else Trangbæk, Institute of Exercise and Sport Sciences, wins the *Lynn Vendien Award* at the 15th Congress of the *International Association of Physical Education & Sport for Girls and Women* at Alberta University in Edmonton, Canada.
- 15.-26.8. 100 nanophysicists from around the world participate in the Niels Bohr Summer Institute – with a summer school and symposium, which includes work on new applications of quantum mechanics and electrical components with new properties.
- 17.-20.8. The *Center for Subjectivity Research* is the principal organiser of the *Toward a Science of Consciousness* conference in Copenhagen, with participants from 30 different countries.
- 21.-26.8. Associate Professor Milena Penkowa, Department of Medical Anatomy, receives *The 2005 ESN Young Scientist Lectureship Award* in Innsbruck.



PHOTO: HEINE PEDERSEN

- 24.8. Associate Professor Milena Penkowa, Department of Medical Anatomy, receives a memorial grant of DKK 100,000 from the *Eva and Henry Frænkel Memorial Fund* for research into apoplexy, which includes cerebral thrombosis and cerebral haemorrhage.

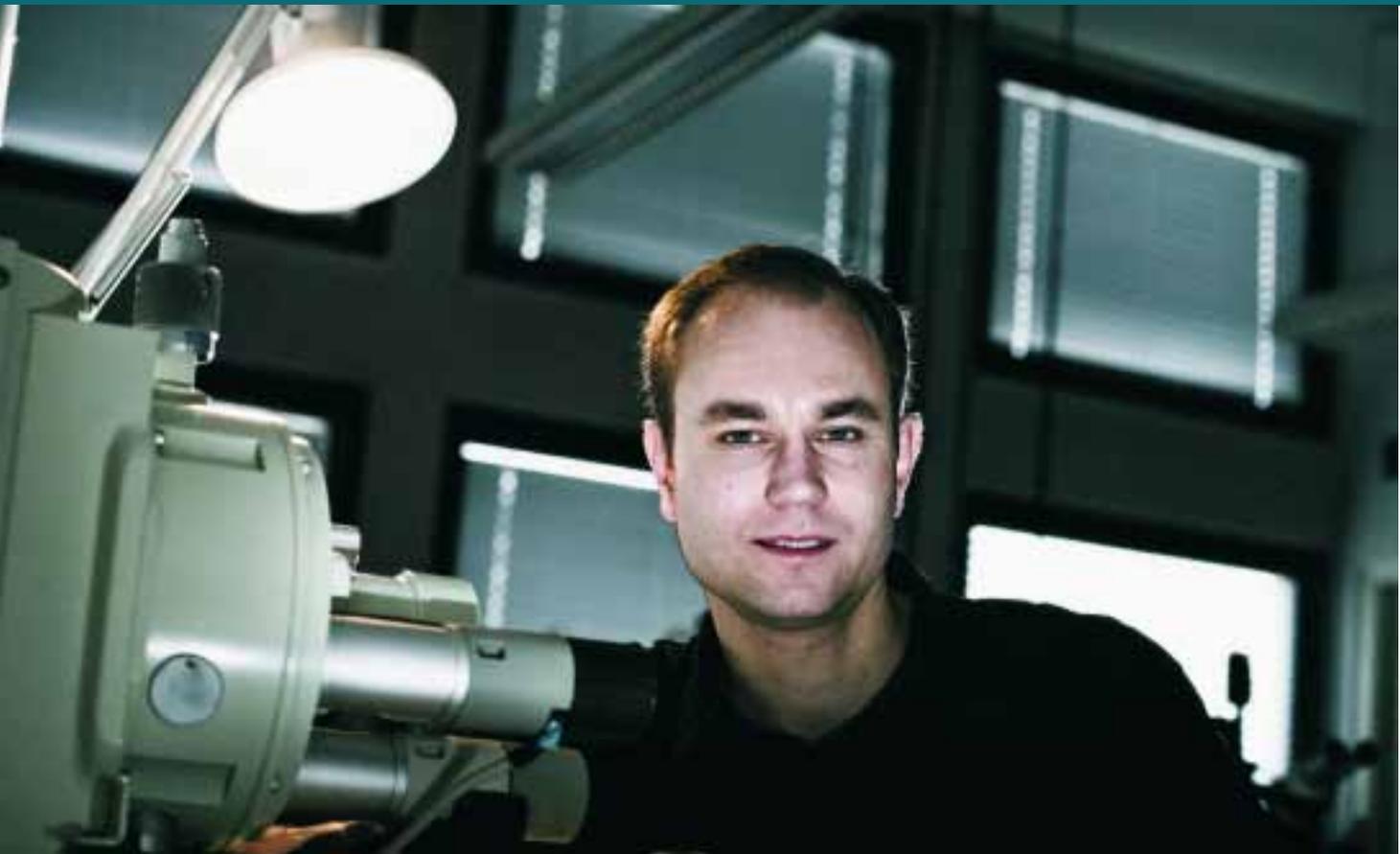


PHOTO: CHRISTOFFER REGILD

There is an entrepreneur hidden in many researchers. At least that is the case for Associate Professor Jesper Nygård, who along with Professor Poul Erik Lindelof and the CAT innovation centre, has taken the leap to establish the first company under the auspices of the University of Copenhagen.

## Researcher with his own company

“This just might be interesting.” That was what Associate Professor Jesper Nygård thought when he and colleagues at the Niels Bohr Institute managed, after years of research, to combine extremely small carbon nanotubes with electrical components, like those used in microchips. And the nano-researcher turned out to be right. The technique has formed the basis of the company known as Hytronics Aps, which Jesper Nygård has established in collaboration with Professor Poul Erik Lindelof and the innovation centre CAT-Symbion Innovation A/S.

“Our method can help make computers faster and smaller than they are today. Enormous progress is currently being made in the field, but in approximately five years, it will no longer be possible to compress the computer’s brain any more with the methods used today. That is where our method comes in. The technique can break down some of the technological barriers that the industry is predicting, and nanotubes can help give electrical equipment a technological leap for-

ward,” says Mr Nygård, who is associated with the University’s Nano-Science Center. He has worked in the field of nanotechnology for the past eight years.

### First company

Not only is the technique behind Hytronics Aps new, the company is also the first of its kind established under the auspices of the University of Copenhagen. The University’s Tech Transfer Unit has helped develop the business concept behind Hytronics Aps, which is currently formed as a private limited company.

“We have developed a concept where collaboration between the University and CAT has given us the funding needed to mature the invention over the next year,” says the head of the unit, Karen Laigaard, who predicts the establishment of more natural-science companies from the University of Copenhagen. Applying for and receiving a patent, however, is not a very simple process.

## Licensing agreements 2005

In 2005, the University of Copenhagen's Tech Trans Unit concluded six licensing agreements based on research results produced by university staff. Agreements have been entered into with the following companies:

- PerkinElmer, Inc. (US), foetal diagnostics
- Hannah Interactions (UK), assay for screening of cancer treatment drug candidates
- Toms Chokolade (DK), tooth-friendly candy
- AntiBodyShop (DK), MBL kit for testing the immune system
- Plant Bioscience Limited (UK), disease resistance with genetically modified plants
- Hytronics Aps (DK), combining carbon nanotubes with semiconductors

This is the highest number of licensing agreements the University has ever concluded in a single year.

The Unit is currently working on a patent portfolio comprising 25 projects. And in 2005, it received approximately DKK 5 million over three years from the Danish Ministry of Science, Technology and Innovation for the development of new concepts for technology transfer. These funds are earmarked for the commercialisation of the most promising projects in the portfolio.

“But we believe in the idea. It is a challenge to transform basic research in physics into something that is application-oriented, and we are making a targeted effort to improve our invention. It is exciting to take part in the establishment of a company and to apply for a patent, but understanding the rules is also time consuming,” says Mr Nygård, who in his own words “loves doing research”.

“I can't imagine a life where I don't spend a lot of time in the lab. But Hytronics Aps is an exciting challenge. We are very focused. There's no time for taking chances or following interesting results in the research, like we normally can. But I think it is healthy to have a go at starting my own company. It teaches me things I didn't know before. At the same time, I'm proud to have come so far with the company,” says Mr Nygård. Although he has a hard time picturing himself exchanging his research for a director's chair, he can see himself starting another company someday.

“It can be difficult not to, when you get caught up in the research.” ■

*The research team behind the discovery comprises Ane Jensen and Jonas R. Hauptmann, students; Janusz Sadowski, guest researcher; and Jesper Nygård and Poul Erik Lindelof, researchers. Hytronics Aps, which is located at the Niels Bohr Institute, is responsible for the further development of the researchers' idea with a view to commercial application.*

- 24.-27.8.** The University of Copenhagen hosts the *Bateson Symposium 2005*. The symposium is attended by participants from Denmark, the USA, Singapore and the UK, among others, and concerns Gregory Bateson and his epistemology – especially the relationship between science and faith.
- 26.8.** The Institute of Economics hosts an *International Conference on Finance* with more than 250 participants. Speakers include Robert Engle, the 2003 Nobel Prize laureate in Economics.
- 28.8.** With the aid of radioactive isotopes from meteorites, an international research team from the Geological Institute and the Geological Museum dates the solar system with previously unheard-of precision. The datings show that the solar system was created 4.569 billion years ago, 2 million years earlier than previously thought.
- 28.8.** An international DNA project including Professor Eske Willerslev, Niels Bohr Institute, shows that in the last three million years, besides the ‘modern’ horse, there have only existed three different equine species. All horses today are therefore closely related.
- 29.8.** At the Geological Institute, the first group of students begins the new, internationalised master's programme in Geology/geosciences. The undergraduates can choose between five subjects: *Climate Archives, Sedimentary Basins, Deep Earth, Water Resources and Earth Materials*.
- 29.8.** Environmental chemistry graduate student Britt Tang Sørensen travels to the United States Environmental Protection Agency, North Carolina, USA to research and develop a method for measuring atmospheric mercury pollution over Alaska. Earlier in the year, Britt Tang Sørensen received an Oticon grant of DKK 100,000 to write her thesis.
- 30.8.** Biophysicists from the Niels Bohr Institute score a world record by capturing nanoparticles of gold using light in three dimensions assisted by so-called optical tweezers, which is a highly focused laser beam. Their groundbreaking findings will be published in the journal *Nano Letters*.
- 31.8.** Associate Professor Anita Berit Hansen, Department of English, Germanic and Romance Studies, receives the *Einar Hansen Grant for Research in the Humanities 2005* of DKK 100,000 for her work in the French language.
- 1.9.** Professor Søren-Peter Olesen, Department of Medical Physiology, receives a grant of DKK 25 million from the *Danish National Research Foundation*. The research funds will be spent on a basic research centre which will investigate the molecular causes of heart arrhythmia.
- 1.9.** Associate Professor Jørgen F. P. Wojtaszewski, Institute of Exercise and Sport Sciences, receives the *Bagger-Sørensen Foundation's Honorary Grant* of DKK 75,000 for his outstanding research into sugar metabolism in relation to physical activity.
- 1.9.** The *Law Research Library, Law Students' Library* and *Library of Criminology and Criminal Law* are merged into one.

How many sofas can actually fit into a transport container? Italy's largest furniture manufacturer is working with the University of Copenhagen and Bari University, in Italy, to solve a classic packing problem. And PhD student Jens Egeblad has developed a computer program that provides answers.

# Packing sofas in Italy

**S**ofas, armchairs, lamps and footstools go in and out of the container at a very fast pace. Orange figures exchange places with red ones.

"I'll just up the speed a bit," says Jens Egeblad. A few seconds – and millions of calculations – later, the container is full. The computer program packed it optimally, although there was not enough room for the two chairs.

Natuzzi, the Italian sofa giant that ships 50,000 containers and the same number of trucks every year, can save money on shipping – for the company and its customers. The customers might be able to get five more sofas in the container for the same transport price. Natuzzi can save money on the company's shipping costs as well as ensure that the containers are

not packed so full that the furniture is damaged – an expensive problem for the leading manufacturer of leather sofas.

## From scepticism to satisfaction

Egeblad, PhD student, and David Pisinger, professor at the University of Copenhagen's Department of Computer Science, represent one leg of this untraditional collaboration. Professor Pisinger is known as a world expert in optimal packing of, among other things, space shuttles. So, of course, the research team at Bari University in southeast Italy contacted him about a year ago. The actual idea – and a fair amount of money – came from the Italian company, despite the fact that the executives at Natuzzi were initially rather sceptical. Would the universities really be able to produce a workable solution? Those wrinkles have long since been ironed out.

"There are so many possibilities for packing a container, because Natuzzi produces hundreds of different models. It's impossible to give a conclusive answer to the question of what is the most optimal packing of a container. And it all has to take

PHOTO: CHRISTOFFER REGILD



place in a matter of minutes, because the company handles 700 orders a day. But we can come very close to a good guess. And the preliminary results show that we can get up to 5 per cent more into each container,” explains Egeblad.

Natuzzi, which has an annual turnover of 800 million Euros, had a more modest hope of optimising packing by 1 or 2 per cent. So they have good reason to be satisfied.

### Visited Bari 11 times

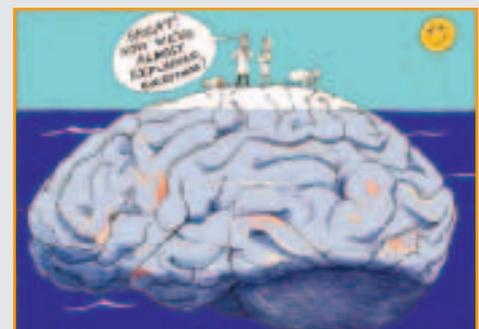
For Egeblad, the project has required much more time than a full-time job. He has visited Bari 11 times and, in the beginning, he had to deal with the language barrier and different approaches to the project. Whereas Italians immediately start looking at the concrete data from Natuzzi, the Danish duo initially thought in terms of overall solution models. But in addition to being a challenge for the young Dane – it has also been interesting and fun. And it has given him useful experience in working with a private company.

“There are many elements involved when collaborating with a company. You can’t just show up and wave a piece of paper in the air with a few figures, because people don’t understand them. So you have to spend a lot of time explaining things. The three-dimensional computer models that we made with our Italian colleagues have been very useful for giving examples. They make it easier to put something in visual terms for people – also for myself,” explains Egeblad with a smile.

But the project differs from more traditional research partnerships in other ways as well.

“There were special requirements for quality. In fact, the Italian packers are already pretty good at packing manually, so our results had to be better across the board before the company was satisfied. They kept our noses to the grindstone. And it’s nice to see that you’ve made something that is used in real life.” The rights to the results of the packing project are jointly owned by the universities and the company, so there might be money to be made in the future. But the parties have not gotten that far yet. And Egeblad also needs to concentrate on finishing his PhD – in packing – *naturelmente!* ■

- 1.9. The Institutes of Geology and Geography collaborate for the first time, providing continuing and further education in geography to upper secondary school teachers. The aim is to offer ideas and inspiration for upper secondary school teaching in the geosciences.
- 1.9. Professor Jann Hau, Department of Experimental Medicine, is awarded *The Animal Welfare Award*, of EUR 25,000 for his work in experimental research for the improvement of the well-being and care of animals used in biomedical research. The award is presented by *Procter & Gamble* in conjunction with *EUROTOX* and *Humane Society International*.
- 1.9. Professor in Company Law, Jan Schans Christensen, Faculty of Law, is appointed chairman of the Danish Competition Council.
- 2.9. Professor of Property Law, Mads Bryde Andersen, Faculty of Law, is made an Honorary Doctor at the University of Oslo.
- 3.9. Associate Professor Jens Midtgaard, Department of Medical Physiology, receives a donation from the *Lundbeck Foundation* of DKK 1.4 million for research in the sense of smell as a model for how the brain perceives sense impressions.
- 8.9. *The Danish National Research Foundation* awards DKK 48 million to the *Danish Center for Quantum Optics, QUANTOP*, which according to an *International Evaluation Panel* has established itself as one of the world’s leading centres for quantum optics.
- 9.9. The Diploma Programme in Criminology is initiated with a major seminar, at which international criminologists provide an overview of the situation in Scandinavia.
- 9.9. Else Trangbæk wins the *Lynn Vendien Award* at the 15th congress of the *International Association of Physical Education and Sport for Girls and Women, IAPESGW*.
- 9.9. The nanotechnology Internet portal, [www.nanotek.nu](http://www.nanotek.nu), developed by the Niels Bohr Institute and Nano-Science Center, opens.
- 9.-11.9. The *Body and Mind Research Priority Area* holds the *Brain and Mind Forum*, which brings together young researchers from such varied disciplines as psychology, philosophy, film and media studies, literary studies, computer science, neuroscience, molecular biology and physics.



DRAWING: ANNE-MARIE STEEN PETERSEN/POLITIKEN

- 10.9. Associate Professor Anja Tatiana Ramstedt Jensen, Department of Medical Microbiology and Immunology, receives an international research grant of USD

# BioLogue kick-off

Better and cheaper medicine in the short term. That is one of the ideas behind the biomedical network BioLogue. The network is made up of public-sector partners and private-sector companies, which employ most of the biomedical researchers in Denmark. In September, they held a kick-off event.

**2**00 business people, researchers and other interested parties from the biomedical sector were present. Everyone was present in the Ceremonial Hall at Frue Plads for the kick-off meeting in September. The programme was packed with keynote speakers and a presentation of BioLogue's six focus areas and seven different workshops. Everyone shared ideas and knowledge and discussed future challenges in the health sector.

## Important networking

The BioLogue Network's most important job is to enable interested parties to meet, giving them a chance to enter into new partnerships between public institutions and the pharmaceutical industry. One of the key speakers, Maire Smith, head of a new innovation unit in the UK healthcare system, emphasised the importance of communication between universities, companies and the healthcare sector.

"Meeting in networks is very important. The faster you tell one another about your needs and wishes, the faster things will happen."

She is currently working to improve conditions for patients and to help the 1.33 million employees in the UK healthcare system work better together, to produce more results – such as specific new discoveries – and put new technologies on the market.

## Too much time

Mads Krosgaard Thomsen, Chief Science Officer at Novo Nordisk took the floor at the Ceremonial Hall to talk about



PHOTO: LIZETTE KABRÉ

the importance of reducing the amount of time that passes from when a researcher has a good idea until the drug is put into production. Rather than growing smaller – that window of time has increased to 13 years:

"No one can carry out the entire process from beginning to end on their own anymore. So a joint forum is crucial," he said. Mr Thomsen is a member of BioLogue, and Novo Nordisk also supports BioLogue through the Danish Association of the Pharmaceutical Industry (LIF).

Then-Rector Linda Nielsen spoke along the same lines when she described BioLogue's objective: Basic research, applied research, the development phase and the final product

## Networks

The University of Copenhagen participates in a number of networks that strengthen collaboration between universities, public institutions and the private sector:

### BioLogue

Partnership to strengthen research in the field of biomedical science.

### Climaite

Creates our future climate in a test area in order to investigate the outcome.

### Crossroads Copenhagen

Development of new user-friendly services that function across mobile telephones, the Internet, TV and radio.

### Diginet Øresund

Partnership to develop the digital experience industry in the Øresund region.

### Geographic Resource Analysis & Science

Stepping stone in the area of IT and satellite use for environmental observation.

### Global Biodiversity Information Facility

Collaboration on making the world's biodiversity data freely accessible on the Internet.

### Mobil Content Lab

Dynamo for the development and testing of content for mobile telephones.

### NaNet

Platform for publicising nanotechnology and its applications.

### Øresund Science Region

Umbrella organisation for research partnerships in pharmaceuticals, IT, food science, environmental science, logistics and design.

are not part of a linear process. They are more like sub-elements, which are constantly being discussed among the different partners.

“We are only limited by our habitual ways of thinking. With BioLogue, we should map the new needs for research, develop the new knowledge in interaction with private companies and the authorities, get optimal use of equipment and laboratories and organise such things as ‘science dating’, more guest researcher positions and industrial research education programmes,” ascertained Professor Nielsen, who also highlighted BioLogue as a key player in the new Danish Pharma Consortium. ■

Read more at [www.biologue.dk](http://www.biologue.dk)

400,000 from the *Howard Hughes Medical Institute* to investigate proteins that cause malaria in African children.

- 10.9. Professor Poul Erik Petersen, Institute of Odontology, is appointed Honorary Doctor at the University of Liverpool.
- 10.-13.9. Professor Gertrud Pfister, Institute of Exercise and Sport Sciences, receives the *International Society for the History of Physical Education and Sport's* award for her ground-breaking research in sports science.
- 11.9. A research team from the Biological Institute creates a sensation with an article in the journal *Evolution* containing research results which map how it is possible for the green frog to reproduce in Denmark.
- 15.9. The University of Copenhagen and the BioLogue biomedical network hold a kick-off conference. (See page 34).
- 15.9. Researchers and students from the Geological Institute participate in the *ESTRID 2* project and attend 100 controlled explosions along a 184-km long strip through Jutland. The project's aim is, by measuring the sound waves from the explosions, to learn more about Jutland's volcanic subsurface.
- 15.9. Professor Jens Juul Holst, Department of Medical Physiology, receives at *EASD's* international diabetes conference in Athens the prestigious *Claude Bernard Award* of EUR 15,000 for his contribution to the treatment of type 2 diabetes.
- 15.9. Professor of biostatistics Niels Keiding, Institute of Public Health, is appointed *Docteur Honoris Causa* at the *Université Victor Segalen Bordeaux 2* in France.
- 15.9. The Centre for the Study of the Bible in Theology and Culture marks its opening with a thematic day at the Faculty of Theology.
- 16.9. The establishment of the Centre of Textile Research is marked by an official opening with many invited speakers from home and abroad.
- 20.9. The *Lundbeck Foundation* grants DKK 120 million for the establishment of three Danish centres for brain research. Of this sum, Professors of Neurology Gitte Moos Knudsen (see page 14) and Jes Olesen, both of the Department of Clinical Neurosurgery and Psychiatry, each receive DKK 40 million for the establishment of two centres: *Integrated molecular brain imaging* and *Neurovascular signalling*.
- 23.9. The Institute of Molecular Biology and Physiology holds an international conference on the topic of *Cell Volume in Health and Disease*. It is attended by 100 researchers from around the world, including the 2003 Nobel laureate in Chemistry Professor Peter Agre.
- 26.9. The Jordanian minister for reform Dr Tayssir Radwan Smadi and a delegation visit the Department of Cross-Cultural and Regional Studies. The delegation is in Denmark to learn about the Danish ombudsman concept and will discuss, among other things, an extended collaboration on cultural heritage.
- 27.9. Niels-Ulrik Frigaard, PhD, Institute of Molecular Biology



PHOTO: HEINE PEDERSEN

Business plans, investors and innovation centres. The University has become a sponsor of the Venture Cup competition in entrepreneurship and in autumn 50 students showed up to find out more about it.



# Entrepreneurship for beginners

**A**long with 50 other students, economics student Rikke Michaela Greve spent an evening in September at an introductory meeting on the Venture Cup competition. The University has become a sponsor of the competition, which will be a recurring phenomenon at the University – with cash prizes for the three best ideas and business plans developed by students. That early autumn evening, the students were introduced to the competition in the company of experienced competition participants, entrepreneurs, business people, students and researchers. The majority of participants were men, but for now that is also how things are in the ‘real’ entrepreneurial world, where more than 70 per cent of all entrepreneurs at universities are men. That fact, however, does not intimidate Ms Greve, who is a graduate student:

“I think the competition sounds interesting, and it could be exciting to enter. I wanted to attend a class in social science, but it was already full, and so I thought that the Venture Cup might be an option,” she says.

Richard Løvlund, a second-year nanotechnology student, was also present at the event:

“I have a ton of ideas that I want to try out, that’s why I’m considering entering the competition. I expect to gain a lot of experience by participating, and a kick in the behind, so I get started finding out whether my ideas are good enough.

## Grow or die

One person, who has already found out whether his idea is tenable, is Dr Peter Buhl Jensen, Chief Hospital Physician at Copenhagen University Hospital – Rigshospitalet and CEO.

He expects that the first product from his biomedical company, Topotarget, will be launched in 2006.

In 2000, Copenhagen University Hospital gave Dr Jensen permission to commercialise the idea he worked on in his research. And that idea has now developed into a listed company with 65 employees. His good advice to everyone attending the evening’s event was clear: “Grow or die!”

Another entrepreneur, Morten Højberg, CEO of Moment, got his idea lying under a tree in the park outside Rosenborg Castle in Copenhagen.

“I was a student assistant in a law firm and could see that there was money to be made getting students to do some of the work that the highly-educated lawyers would otherwise have to do. So I started my own company, offering student assistance to law firms,” says Mr Højberg. Today that company has grown into three with a total of 60 employees.

“My advice to coming entrepreneurs is also simple: believe in yourself,” says Mr Højberg.

After a presentation of the Venture Cup competition rules, much good advice and sharing of experiences, it was time to network – an important discipline for entrepreneurs. Also for beginners. ■

*For more information visit [www.venturecup.dk](http://www.venturecup.dk)*



PHOTO: HEINE PEDERSEN

## Entrepreneurial University of the Year

The University of Copenhagen was honoured in October with the title "Entrepreneurial University of the Year" at the conference entitled *Iværksætter nytter* (Entrepreneurship Works), organised by the Danish Ministry of Economic and Business Affairs, the Ministry of Education and the Ministry of Science, Technology and Innovation. The award went to the Danish university that has created the largest number of real entrepreneurship-oriented educational opportunities for students, while also managing to provide information and inspiration for innovation and new thinking. The award was based on the report *Universiternes Iværksætterbarometer 2005* (The Universities' Entrepreneurial Barometer 2005). "In recent years, the oldest university in Denmark has made significant strides in the area of entrepreneurship based on a general strategy plan. The University of Copenhagen has introduced a number of new disciplines and courses in entrepreneurship, all of which are popular among the students," Mr Helge Sander, Minister for Science, Technology and Innovation, said at the ceremony.

Pro-Rector Jørgen Olsen received the award on behalf of the University of Copenhagen. In his speech, he thanked everyone at the University who helped increase its activities in the areas of innovation and knowledge transfer to the business community. This process is described in a report on entrepreneurship.



PHOTO: JASPER CARLBERG

Read more at [www.ku.dk/innovation](http://www.ku.dk/innovation)

and Physiology, receives a *Skou Scholarship* of DKK 2.3 million for basic research in sulphur bacteria. The purpose of the project is to investigate how such bacteria convert inorganic sulphur compounds.

- 28.9.-** The University of Copenhagen and the Danish Mycological Society organise a *Mushroom Festival* in the Botanic Garden. (See page 47).
- 2.10.**



PHOTO: HEINE PEDERSEN

- 29.9.** Professor of ice physics, Dorthe Dahl-Jensen, Niels Bohr Institute, receives the *Direktør N. Bang og hustru Camilla Bang, født Troensegaards Legat* honorary grant.
- 30.9.** The Danish Arrhythmia Research Center (DARC), established by Professor Søren-Peter Olesen, Department of Medical Physiology, is inaugurated with a grant of DKK 25 million from the *Danish National Research Foundation*.
- 30.9.** A number of researchers from the Institute of Biology initiate one of the world's most advanced climate research projects, *CLIMAITE*. Using a biological "time machine" the researchers put the clock forward to a Danish climate in the year 2075 and investigate nature's reactions to climate change.
- 1.10.** Experimental physicist Clive Ellegård, Niels Bohr Institute, and visual artists Christian Skeel and Morten Skiver exhibit the project *Interference* at Esbjerg Museum of Art, in the crossfield between visual art and science.
- 4.10.** Associate Professor Svend Funder, Geological Museum, is awarded the Egede Medal for his long-term curation of the Museum's quaternary-geological paleobotanical collections and associated research and educational activities. Previous recipients include the famous polar scientists Knud Rasmussen (1924) and Roald Amundsen (1925).
- 4.10.** 11 of Denmark's most prominent climatologists, economists, energy experts and ethicists meet at the University of Copenhagen. The occasion is the educational project *Science con Sensus*, backed by the Ministry of Education, in which university students are to represent the experts' science-based views in a series of upper secondary school debates.
- 5.10.** "You are an institution within the institution," says Rector Linda Nielsen in her speech to the retiring dean of the Faculty of Science, Henrik Jeppesen, who, for health reasons, is leaving the post he has held since 1990.

The University of Copenhagen hosted a number of events in connection with the national debut of the Day of Research – among them a café with the theme of happiness. It packed a full house.



PHOTO: HEINE PEDERSEN



## An unmarried Dane is just as happy as a married Finn

**M**arriage does not necessarily mean happiness in Finland. Either that or Danish singles are just unusually happy with their lives – in contrast to the norm for singles. This was one of the points made by the sociologist Peter Gundelach when the University of Copenhagen opened the doors to the Happiness Café during the Day of Research. The date was 12 May and the place was a marquee on Nytorv Square in the centre of Copenhagen, where 250 visitors sat under a dancing helium balloon. For the rest, it was standing-room-only at the marquee opening. In addition to the sociologist, five other researchers gave their views on happiness – on the Internet, in the animal kingdom, in the brain and in relation to body image and religious faith.

And Danes rank high on the happiness barometer. We are more satisfied and happier than other Europeans, and this can be linked, according to Peter Gundelach, to the fact that we are good at getting together socially, for instance through clubs and associations. But it could also be because we live in a smooth-running welfare society that bears some similarity to tribal societies, according to the sociologist.

### Women should be kneaded

For Hans Bonde, a sports science researcher, the Danish weight-loss-through-diet guru – Anna Larsen a.k.a. the “fat exorcist” – is not the source of happiness. Exercise is, however. Not necessarily to keep a nice figure, but to keep healthy on the inside. “In fact, it is better to be a heavy person who exercises, than a skinny couch potato, explains Mr. Bonde, adding:

“Women should be kneaded!” A statement that contributed significantly to the happiness-level in the marquee.

Charlie Breindahl also had women in his scopes, but only on the Internet, where dating is a popular taboo, and where the media researcher discovered his own personal happiness.

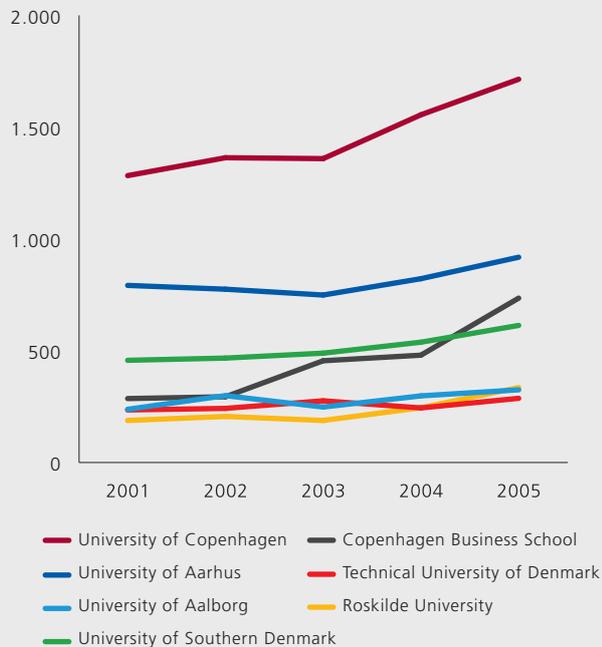
### Happiness and faith

In the event’s second half, there was a presentation by the brain researcher Gitte Moos Knudsen, who showed images of the brain’s activity when we are happy. There was also a talk by religious psychologist Peter La Cour on the influence faith has on feeling happy: “People who have faith appear to feel

## Figures on communication

Researchers from the University of Copenhagen are highly visible in the media. The summary shows that researchers communicate increasingly to a wider audience.

Number of citations in five selected national newspapers\*



\* Infomedia newspaper article database

happier than others. But faith does not necessarily have to be faith in God – it can also be atheism.”

The last talk of the night was given by biologist Knud Erik Heller, who asked whether animals can be happy – and answered his own question in the negative. “If animals have their needs met, there’s nothing else there. They can feel satisfaction, but not happiness,” was his opinion. And that gave everyone something to think about – especially dog-owners – on the way home from the Happiness Café, which was organised in collaboration with the Danish daily newspaper *Politiken*. ■

On 12 May, it was also possible to visit the “Ask a researcher” tent on Nytorv square, where passers-by could converse with a number of researchers – among them brain researcher Steen Hasselbach.

- 5.10. Associate Professor Jørgen Wojtaszewski, Copenhagen Muscle Research Centre, Institute of Exercise and Sport Sciences, receives an honorary grant of DKK 75,000 from the *Bagger-Sørensen Foundation* for outstanding research in the molecular biology of a series of key enzymes in muscle tissue in healthy individuals and diabetes patients.
- 6.10. Hans Karle, specialist and educational consultant at the Faculty of Health Sciences, is rewarded for the development of medical education and gives his name to the new *Karle Prize* of DKK 40,000, of which he is the first recipient. The prize is awarded for “exceptional commitment to health science education.”
- 7.10. A research team from the newly opened basic research centre Dark Cosmology Centre, at the Niels Bohr Institute, observes for the first time the light from a so-called short gamma-ray burst, which presumably derives from the explosive collision of two neutron stars. The research findings make the front page of the journal *Nature*.
- 7.10. The Danish Research Agency’s Programme Committee for Nanoscience and Technology, Biotechnology and IT (NABIIT) grants DKK 8.6 million for a research project in GRID technology, which allows unused IT resources to be exploited. The research project is a collaboration with the Department of Computer Science, the Nano Science Center, the Technical University of Denmark and the commercial companies Atomistix and MESH Technologies.
- 13.10. The Zoological Museum exhibits very rare objects in the *Extinct* exhibition, including the famous dodo skull, great auk intestines, sabre-tooth tiger skull, moa egg and skeleton, a stuffed passenger pigeon and a wide range of other extinct species.



- 13.10. The University of Copenhagen is chosen as *Entrepreneurial University of the Year 2005*. (See page 37).
- 14.10. A whole series of units in the University of Copenhagen participate with more than 50 events in the Copenhagen Night of Culture.
- 14.10. The Bahraini Prince Sheikh Khalid Al-Khalifa and a ministerial delegation visit the Department of Cross-Cultural and Regional Studies. At the meeting, particular attention is drawn to an interest in stronger collaboration in terms of universities and exhibition projects.
- 15.-  
19.10. Professor Jørgen Rask Madsen, Head of the Clinical Institute of Internal Medicine, in his role as President of the *13th United European Gastroenterology Week* is the host for 8,300 delegates at Copenhagen’s Bella Center.

# Communicator for the stars

Astrophysicist Anja C. Andersen from the Dark Cosmology Centre is now certified as the best research communicator in Europe. In 2005, she received the newly established *Descartes Prize*.

**W**hen you call to make an appointment to meet with a female astronomer, you expect an answer along the lines of “Meet me at Cassiopeia”. But Astrophysicist Anja C. Andersen prefers to meet at her office at the Niels Bohr Institute in Copenhagen. It is a chaotic place these days, because she is in the process of packing to move to the Dark Cosmology Centre, the newly established basic research centre in the Rockefeller Complex, also under the auspices of the University of Copenhagen.

Professor Andersen received the new European Descartes Communication Prize in 2005. The Communication Prize is a sister to the Descartes Research Prize – also called the EU’s answer to the Nobel Prize. The previous year, Professor Andersen received the Danish Award for Outstanding Public Outreach from the Ministry of Science, Technology and Innovation, which recommended her for the Descartes Prize of 50,000 Euros.

“Right now it seems like communication is taking up a frightful amount of time. There’s also supposed to be time to do research – otherwise there’s nothing to communicate. Right now, I’ve been communicating so much that I almost can’t stand the sound of my own voice. What I really love is to do research, and that’s what I want to spend my time on,” says the stellar researcher.

## New knowledge for the Queen

But Professor Andersen is also inspired by communication, because people in the audience are interested and ask questions. For instance, the Queen of Denmark told her, after her lecture at the University’s Annual Commemoration, that she had not realised that the Big Bang only formed hydrogen and helium. All the other elements have been formed in the stars.



PHOTO: MORTEN MEJNECKE

“I had forgotten that not everyone knows that. It’s always good to be reminded once in a while,” laughs Professor Andersen, something she does wholeheartedly and often.

“And that’s why it’s good to be an astronomer,” she continues.

“I’ve never met anyone who didn’t want to hear about the universe. When I give talks, third-graders ask me the same questions as University extension students do. What was there before the Big Bang? What is inside black holes? I think the search for answers to these big questions drove us down from the trees.”

## Tips for her colleagues

Does Europe’s best scientific communicator have any tips for other communicators?

“I find it’s good to avoid making too many points at once, because otherwise the audience can’t remember what they heard afterwards. And you mustn’t be afraid to repeat yourself,

because some things we need to hear over and over again in order to remember them,” says the woman, who believes that she makes her scientific lectures too complex.

“When I give a popular science lecture, I generally talk and can make it easier to understand. At scientific conferences, I present my current research and can easily get caught up in the details, making it difficult, even for other astronomers. I think that I need to work on employing some of my methods from my popular science lectures in my scientific lectures.”

There is one last question you just have to ask Professor Andersen: What does she think about the possibility of life out there in the universe?

“I expect there must be life in many places, because we know the conditions exist. We just don’t know yet whether life has emerged elsewhere. And if there is, will we be able to observe it? ■

Read more at [www.astro.ku.dk/~anja](http://www.astro.ku.dk/~anja) and [www.astro.ku.dk/dark](http://www.astro.ku.dk/dark)

## Award for Outstanding Public Outreach 2005

In May 2005, Professor Bente Klarlund Pedersen, MD, who conducts obesity research at the Clinical Institute of Internal Medicine, received the Danish Ministry of Science, Technology and Innovation’s 2005 Award for Outstanding Public Outreach in the amount of DKK 100,000. According to the official statement, “Bente Klarlund Pedersen is a keen and talented communicator of her research and a dedicated and respected researcher who successfully builds bridges between the scientific community and the general public.”



PHOTO: SCANPIX

- 19.10. The most detailed analysis to date of how people differ from each other at DNA level is published in the journal *Nature*. Professor Rasmus Nielsen, Bioinformatics Centre, is the co-author with Cornell University, Celera Genomics and Celera Diagnostics.
- 19.10. A new Board of Exercise and Nutrition, to promote better health for all Danes, replaces the existing Board of Exercise. Bente Kiens, Institute of Exercise and Sport Sciences, is appointed deputy chairperson of the Board.
- 21.10. Professor Niels Høiby, Department of Medical Microbiology and Immunology, receives two American awards for his work on cystic fibrosis: *The Richard C. Talamo Distinguished Clinical Achievement Award* and *The 2006 GlaxoSmithKline International Member of the Year Award*.
- 22.10. Professor Palle Holmstrup, Institute of Odontology, is awarded an honorary doctorate in odontology by Gothenburg University.
- 24.10. One of Europe’s most distinguished EU researchers, Professor Simon Hix, London School of Economics and Political Science, lectures in the *Europe in Transition* Research Priority Area research seminar on current topics in EU research.
- 25.10. Associate Professor Bent Holm, Department of Arts and Cultural Studies, is appointed to the order of *Cavaliere della Stella della Solidarietà Italiana* for his research in Italian theatre and his work in promoting appreciation of Italian drama.
- 28.10. The University of Copenhagen holds the conference *Internationalisation at home – the future of the University of Copenhagen in the global knowledge society*.
- 28.10. Research at GRAS and the Department of Geography shows that many human lives could have been saved during the tsunami disaster if mangroves and tree stands along the coasts of South-East Asia had not been felled to make way for such things as hotels. The research is published in the journal *Science*.
- 31.10. Rector Linda Nielsen holds a farewell reception in the Ceremonial Hall.



PHOTO: HEINE PEDERSEN

- 31.10. The Geological Institute, together with the Geological Survey of Denmark and Greenland (GEUS) and the Department of Geography, hosts the scientific and cultural event *Copenhagen ZeroCarbonCity*. The project was launched by the British Council and the UK Ambassador. Two upper secondary school classes present their views on climate problems and potential models for solutions.

# Climate debate with stand-ins



PHOTO: HEINE PEDERSEN

Jonas Herby, an economics student, is sometimes Bjørn Lomborg. He plays the well-known economist when *Science con Sensus* visits upper secondary school classrooms to debate climate issues. The new teaching concept is the result of a collaboration between the Faculty of Science at the University of Copenhagen and the Danish University of Education.

**T**hings are a little different in biology class today. The teacher is not standing at the blackboard, but is running around with a stopwatch around her neck and setting out mineral water at the lectern. Today, it has been transformed into a podium and the six combatants are taking their places: a couple of climate researchers, economists, an environmental ethicist and one energy expert. A few girls in the back row are giggling loudly:

“Karsten Klint Jensen isn’t a girl.”

But he is. At least today. And his name is Ditte Marie. Ditte Marie Munch Hansen, a philosophy student, is playing the role of Karsten Klint Jensen, the environmental ethicist, in the day’s debate at Frederiksberg Gymnasium. Just like economics student Jonas Herby is Bjørn Lomborg today.

## A visit from experts

The visitors are *Science con Sensus*. The project, which receives funding from the Danish Ministry of Education, is based on the concept behind the Danish Board of Technology’s consen-

sus conferences. Consensus conferences are normally meetings between a panel of citizens and a number of experts. Today, the experts are natural science, philosophy and economics students from the University of Copenhagen. With the help of meetings with the real experts, they have been prepared to act as stand-ins for the experts’ opinions and arguments. Everyone is ready to answer the students’ questions.

After a short academic presentation from the experts, there is time for questions and debate. The students have spent the weeks up to the meeting in preparation. But they should not expect any yes or no answers from the experts. Clear answers are not given, because there are none. Thus, the project puts an end to the myth that the natural sciences can give precise and final answers to everything with the help of advanced formulas. The students discover that dealing with natural science issues can also involve societal and ethical-philosophical aspects.

## The mission: consensus

The day's debate is on climate. At the five participating schools, this topic is part of the curriculum in the new natural-science interdisciplinary course in the first year of upper secondary school. By focusing on the issues, the natural science disciplines and their contributions to technological and societal progress are put into perspective.

During a break in the debate, the students have a chance to put the finishing touches on their questions. Some sort of disagreement seems to have arisen in one of the groups as to whether it is right of Bjørn Lomborg to give climate change such a low priority. Are AIDS and starvation greater problems? Can't we afford to solve all the problems, or at least to do something about everything?

But they must reach a consensus. The students' final assignment is, in best democratic fashion, to prepare a final declaration based on the outcome of the debate. This document must contain the entire group's position on the issue and their recommendations for how to act in future. For instance, should dikes be built and evacuation plans be laid out to prepare for rising water levels as a result of global warming?

The pressure on the experts is gruelling now. What would climate researchers do? How do you put a price on human life? And is the price of life different here than in developing countries? The energy level is kept high for the entire four hours. The temperature in the room is nearing greenhouse levels. The teacher's stopwatch beeps and the day's debate is over. A young man in the first row tries to capture the experts with his mobile camera. He forgot to turn off the sound. Giggles are heard.

But the girl in the back row is no longer laughing. She forgot some time ago that Karsten Klint Jensen was a woman today. And she has been given a lot to think about. The *Science con Sensus* experts pack their things. Tomorrow they will visit a new school in a new town. In spring, the issue of genetically modified crops will be debated in the classrooms. ■

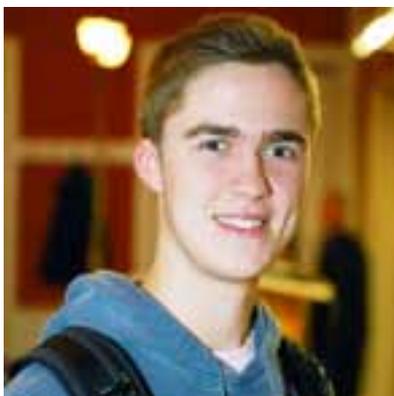
- 31.10. The Faculty of Science holds its first *Venture Cup* event for all its students.
- 1.11. Professor and Dean of the Faculty of Health Sciences, Ralf Hemmingsen, MD, takes up his post for a five-year term as the 258th rector of the University of Copenhagen. With the change of leadership, Vice-Dean Ulla Wewer is appointed acting Dean of the Faculty of Health Sciences.



- 1.11. The Faculty of Science acquires its own seal. The seal features a stylised representation of the element hafnium's atomic model. Hafnium was discovered at the University of Copenhagen in 1923.
- 6.11. The Iranian human rights lawyer, author and *Nobel Peace Prize* laureate for 2003, Shirin Ebadi, gives a talk in the Ceremonial Hall on "Islam and Democracy – is there a way?" The event takes place as a collaboration between the University of Copenhagen and Danish PEN.
- 8.11. The *Religion in the 21st Century* Research Priority Area holds a seminar on imam education.
- 8.11. Students from the Faculty of Science visit the first of seven upper secondary schools with the education project *Science con Sensus*. They are to play the role of, for example, environmental debater Bjørn Lomborg and Greenpeace's climate and energy campaigner, Tarjei Haaland, in panel discussions on global warming.
- 8.11. Epoch-making research by Associate Research Professor Søren Tvorup Christensen's team at the Institute of Molecular Biology and Physiology shows that cell growth is controlled by antennae on the cells, and that faults in these can lead to cancer. The findings become the week's hottest news in *Science STKE*.
- 9.11. The universities behind the new Danish Pharma Consortium join forces to promote their research to industry in a *matchmaking event*, where some of the country's top researchers meet with 17 biotech companies.
- 10.11. Professor Steffen Loft, Institute of Public Health Science, holds the *Meet science* lecture *Is it safe to breathe?* (See page 44).
- 11.11. Biologist Niels Krabbe, Zoological Museum, finds the *Dusky Starfrontlet* hummingbird living in Columbia. Until now, for more than 50 years, it was known only through a single specimen collected and stored in the US National Museum.
- 16.11. The Museum Tusulanum Press is the first in Denmark to collaborate with Google on the new *Google Book Search* marketing programme, whereby you can now search deep into printed books on the Internet and browse virtually inside them.

# Meet science every month

**P**eople were even sitting on the windowsills when the University of Copenhagen hosted the end-of-the-day event Meet Science on 10 November. The topic of the month was air pollution in Copenhagen, and the speaker was Steffen Loft, MD and professor of environmental medicine at the Institute of Public Health. Professor Loft explained that particle pollution results in 3,400 deaths a year – or shortens the life of every Copenhagener by three-quarters of a year. Someone in the audience asked whether we should stop running and biking in the city. Not according to Professor Loft, who claims we add on average 10 years to your lives by exercising. A calculation that was pretty clear to most.



PHOTOS: WILLI HANSEN

## Kristian Laustsen

Age: 21 years

Occupation: student of natural resources at the Royal Danish Veterinary and Agricultural University

Residence: Hvidovre, southeast of Copenhagen

*Why did you come today?*

"I'm very interested in the topic, and I don't think it gets enough attention in the media. What we do read about is very superficial."

*What did you think of the event?*

"It was really good. I realise now that I didn't know much about the topic before. I'd definitely come again, and would also like to hear about things I don't normally work with."

## **POLITIKEN**

*Meet science is organised in collaboration with the Danish daily, Politiken.*



## Sys Hansen

Age: 57 years

Occupation: horticulturalist, works on traffic projects at the Agenda 21 Centre

Residence: Nørrebro, borough of Copenhagen

*Why did you come today?*

"I am currently working on a project to reduce traffic in Nørrebro. So I'm very interested in the consequences of particle pollution. I'm particularly interested in how plants absorb particles, and whether some plants are better at it than others."

*What did you think of the event?–*

"Steffen Loft was good at communicating so everyone could follow him. He wasn't too scientific and detailed. I would come again. I find most things interesting, but I'm particularly interested in this topic."



## Gertrud Nielsen

Age: 24 years

Occupation: geography student at the University of Copenhagen

Residence: Amager, east of Copenhagen

*Why did you come today?*

"Because I'm interested in air pollution and in how we can make Copenhagen a better place to live. And I wanted to hear a talk by a researcher from the Institute of Public Health, because I've heard so much about the programme."

*What did you think of the event?*

"It was good, even though there were a bit too many statistics. I also think it was good that the audience contributed so much to the debate. It seems like a lot of people got something out of it."



## Finn Larsen

Age: 64 years

Occupation: Early retiree

Residence: Herlev, northwest of Copenhagen

*Why did you come today?*

"It's always interesting to hear about what researchers are up to."

*What did you think of the event?*

"I see the adverts in the newspaper and try to come every month. I've been to most of the talks – although I didn't see the one on dinosaurs in October. I couldn't make it that day."

## Meet Science events 2005

**16 February:** A Danish tsunami?

Associate Professor Lars Nielsen, Geological Institute

**16 March:** Silly walks

Associate Professor Niels Lynnerup, Institute of Forensic Medicine, and Associate Professor Erik B. Simonsen, Department of Medical Anatomy

**6 April:** Small is big

Research Professor Thomas Bjørnholm, Nano-Science Center

**12 May:** Happiness Café (extended event in connection with the Day of Research)

Professor Peter Gundelach, Department of Sociology: *Happiness in Danish*

Professor Hans Bonde, Institute of Exercise and Sport Sciences: *Ideal body image and happiness*

External Associate Professor Charlie Breindahl, Department of Media, Cognition and Communication: *Hunting for happiness on the Internet*

Chief Physician Gitte Moos Knudsen, Department of Clinical Neurosurgery and Psychiatry: *Happiness in the brain*

Assistant Professor Peter La Cour, Institute of Public Health: *Are religious people the happiest?*

Associate Professor Knud Erik Heller, Institute of Biology: *Can animals be happy?*

**15 September:** DNA detectives in the time machine

Professor Eske Willerslev, Niels Bohr Institute

**12 October:** Dinosaurs on Bornholm

Jesper Milan, PhD student, Geological Institute

**10 November:** Is it safe to breathe?

Professor Steffen Loft, Institute of Public Health

**7 December:** Understanding Islam

Associate Professor Jørgen Bæk Simonsen, Department of Cross-Cultural and Regional Studies



PHOTO: WILLI HANSEN

- 17.11.** The University's Annual Commemoration in the presence of HM Queen Margrethe II. Associate Professor in Indian Languages and Cultures Una Canger, Department of Cross-Cultural and Regional Studies, receives the University's teaching award, *Årets Harald*, and astronomer Anja Andersen, Niels Bohr Institute, give the year's commemorative lecture on "Cosmic dust – source of life".



PHOTO: CHRISTOFFER REGILD

Eight people are conferred honorary doctorates: the theologian Professor Halvor Moxnes (Oslo); anthropologist Professor Wendy James (Oxford); Professor Ole Didrik Lærum, MD (Bergen); Professor Ronald G. Blasberg, MD (New York); linguist Professor Penelope Eckert (Stanford); historian Professor Emeritus Peter Sawyer (Leeds, now Trondheim); biologist Professor Peter Satir (New York) and physicist Professor Albert J. Libchaber (New York).

45 doctorates were conferred and six gold and eight silver medals awarded for entries in the University's essay competition. There were also speeches by Chairperson of the Board Bodil Nyboe Andersen, Rector Ralf Hemmingsen and graduate student Henrik Friis of the Student Council. (See page 48)

- 19.11.** The *Textbook Award 2005* is awarded to Associate Professor Helen Krag, Department of Cross-Cultural and Regional Studies. The award is worth DKK 100,000 and is to be used to produce the textbook *Mangfoldighed, magt og minoriteter – introduktion til minoritetsforskningens studier* (Diversity, power and minorities – An introduction to minority research studies).
- 25.11.** At the Danish Academy's annual commemoration, lecturer Carl Henrik Koch, Department of Media, Cognition and Communication, receives the *Selskabet til de skønne og nyttige Videnskabers Forfremmelses Prize* "for an outstanding contribution to linguistic/literary culture." He has contributed more than three of the five volumes of *Dansk Filosofis Historie* (History of Danish Philosophy).
- 28.11.** Iraqi Day of Culture at the Carsten Niebuhr Section, with the presence of the chair of the Iraqi authors' association Fadhil Tamir, the actor Shatha Taha Salem and the Director General of the Iraqi Culture Ministry, Jaber Al-Jaberi. The day's topics include Iraq's cultural heritage and a Danish public library project in Basra.
- 29.11.** Carsten Meier, a Researcher at the Institute of Molecular Biology and Physiology, receives *Carl Bro Gruppens Inspirationspris 2005* for developing a genetically engineered plant which changes colour when it comes into contact with traces of in-ground explosives.
- 29.11.** Three new research centres, financed by a total grant of DKK 90 million from the Danish National Research



PHOTO: LIZETTE KABRÉ

“Are there any police officers out there? They said on the radio that a group of police officers was going to show up. But I think they got our event confused with the big football match at the stadium,” one of the organisers says to a journalist.

The journalist was at the Geocenter for the University’s interdisciplinary conference on freedom of speech and research. The conference was a reaction to an episode in autumn 2004, where a non-Muslim teacher was attacked by unknown assailants after having read aloud from the Koran. Almost 400 people were in attendance to hear 12 of the University’s researchers and teachers, as well as two colleagues from abroad, debate the ideal of academic freedom.

“With this conference, we emphasise the right and obligation of universities to act as venues for free interaction and discourse among people – a discourse based on tolerance, curiosity and a fundamental respect for freedom of speech for all people,” then-Rector Linda Nielsen said in her opening speech.

### Ideals and reality

Three large-screen TVs were erected in the conference hall. The screen on the left displayed section 77 of the Danish Constitution on freedom of speech; the screen on the right displayed Article 10(1) of the European Convention on Human Rights on the right to freedom of thought.

The first speaker of the day was a female professor of law from a university in Morocco. She spoke on the ideals and reality of freedom of speech in Muslim and Western societies and struck a blow at extreme liberalism, which she feels all

In February 2005, the University of Copenhagen hosted an international conference on the necessity of freedom of speech and research.

## A good day for freedom of speech

other Western countries, with the exception of Scandinavia, have succumbed to. She was followed by an Oxford professor of Syrian descent, who spoke on democracy in the Arab world, while the head of the Danish Dialogue Institute in Cairo, Jakob Skovgaard-Petersen, spoke on the economically and intellectually beleaguered Arab universities.

“The Arab universities are so financially impoverished that it has a negative effect on all attempts at decent research. In Egypt, it costs 12 dollars a year to educate an engineer. In the USA, they spend 1,200 dollars on the same project. Islamists and academic self-censorship are problems for the Arab universities, but the financial issue is clearly the greatest problem.”

He also criticises the Western critics of Islam, however, for, as he says with a wry smile, the Arab universities are not the only ones who give birth to opportunism and lack of critical thinking.

### A good day for freedom of speech

Then the conference changed directions, opening up the discussion to a wide range of disciplines, representing the University in all its diversity. There were discussions on creationism and Darwinism, socially imposed restrictions on stem-cell research and book-burnings. Talks were held on the bloody reality that can frighten minority researchers from working, on freedom of speech as a legal principle and on the role of the university with regard to society’s taboos.

Between each discussion, the audience was given the floor. Debates, questions and allegations flew back and forth across the hall under the expert supervision of the moderator, who was only forced to utter a caution once. And at the end of the day, it was clear that “the university” stands for one and the same thing throughout the world, and that every discussion is also about understanding and acknowledging our different circumstances.

The police officers were well-placed at the stadium, because luckily there was nothing for them to do at the Geocenter. ■

# 11,500 visit mushroom festival

**T**he Botanic Garden was the host of a mushroom festival in autumn, where students, researchers and the business community – as well as five chefs – gave a taste of their work with these special organisms. 11,500 guests visited the large marquee with 800 mushrooms on display – poisonous, edible and in a variety of colours. They were gathered by members of the Danish Mycological Society, which organised the festival in collaboration with the University of Copenhagen in celebration of the Society's 100th anniversary. The main purpose of the festival was to give the business community and researchers an opportunity to present their work with fungi. Mr Steen Riisgaard, President and CEO of Novozymes, praised the fungus that produces the enzymes the company profits on. And Mr Jørgen Olsen, Pro-Rector of the University of Copenhagen said in his opening speech:

“This mushroom festival gives us the opportunity to show off the University from some of the sides we're most proud of: high quality research, collaboration with the business community and captivating public outreach.”

Mr Bertel Haarder, Danish Minister for Science, Technology and Innovation, was also pleased with the festival:

“Educational institutions could learn something from professional sports teams. They are out there recruiting talented players in their formative years. Events such as this may help capture the interest of young people.”

And then he dipped his spoon into a cup of mushroom soup created by Chef Jakob de Neergaard. ■



Foundation, open at the Niels Bohr Institute: Dark Cosmology Centre, Center for Models of Life and Center for Molecular Movies (CMM).

- 30.11. The Danish National Research Foundation's Nordic Center for Earth Evolution opens. Staff at the new Center include Professor Mink Rosing, the Geological Museum, and Professor Robert Frei and Assistant Professor Christian Bjerrum, Geological Institute.
- 1.-2.12. The University of Copenhagen hosts the Association of Competition Economics' international conference.
- 2.12. Actor Nicolas Bro is awarded the Ingmar Bergman Travel Grant of DKK 50,000 at a reception at the University of Copenhagen.
- 2.12. Astronomer Anja C. Andersen, Dark Cosmology Center, Niels Bohr Institute receives the *Descartes Prize*. (See page 40).
- 3.-31.12. The Palm House at the Botanical Garden is the setting for the *Flet & Fauna* exhibition of art basketwork by Eva Seidenfaden and Agnete Bjørneboe.



- 9.12. Ole Haagen Nielsen, Associate Professor of Clinical Research, Clinical Institute of Internal Medicine, and Professor Børge Nordestgaard are awarded the new *Herlev High Impact Prize 2005* for outstanding research.
- 15.12. For the first time, the Danish Competition authority awards prizes for the best papers in competition law and economics. The first prize in the competition economics paper category of DKK 20,000 is awarded to Nikolaj Warming Larsen, economics student, and the second prize of DKK 10,000 is awarded to Claus Bjørn, economics student.
- 21.12. A research team at the Department of Medical Biochemistry and Genetics, led by visiting researcher Sakari Kauppinen, collaborates with the biopharmaceutical firm of Santaris Pharma to develop more effective cancer medicines. The Danish Advanced Technology Foundation backs the project with DKK 9.7 million.
- 21.12. The Danish Advanced Technology Foundation grants DKK 25.7 million to an unusual partnership between Nano Science Center and Mærsk Olie og Gas A/S. The oil and gas company itself contributes DKK 17 million. The funds will be spent, among other things, on appointing 19 junior researchers to the *Improving Oil Recovery through Nanotechnology* project. ■

# Tempest in impressive surroundings

**A**s is tradition, there was plenty of gold and glimmer, long dresses, beautiful hair-dos, dark suits and shined shoes when the University celebrated the Annual Commemoration in November. The Students' Choral Society also sang the University anthem "Hellige flamme" (Holy Flame) before the gala performance, to a standing audience.

But a new feature of the event in 2005 was that students, staff and invited guests could explore Henning Larsen's architecture, study Olafur Eliasson's globe-like lamps and view Per Kirkeby's reliefs before the gala performance. The traditional venue for the Annual Commemoration has been the Royal Theatre in the centre of Copenhagen, but in 2005, the brand new opera house on Holmen, just across the harbour, hosted the event. On the programme was Thomas Adès' opera based on Shakespeare's play *The Tempest*, with its divine music and impressive scenography.

After the performance, and before entering the cold November night, there was time to praise astrophysicist Anja C. Andersen for her principal speech given at the University of Copenhagen earlier in the day. The topic was cosmic dust, of which there is so little that she calls the universe "a housewife's dream". Bodil Nyboe Andersen, Chairperson of the Board, and Ralf Hemmingsen, the new Rector as of November, were also new speakers at the event. ■

PHOTO: CHRISTOFFER REGILD



PHOTO: CHRISTOFFER REGILD

PHOTO: CHRISTOFFER REGILD





PHOTO: TOMAS BERTELSEN

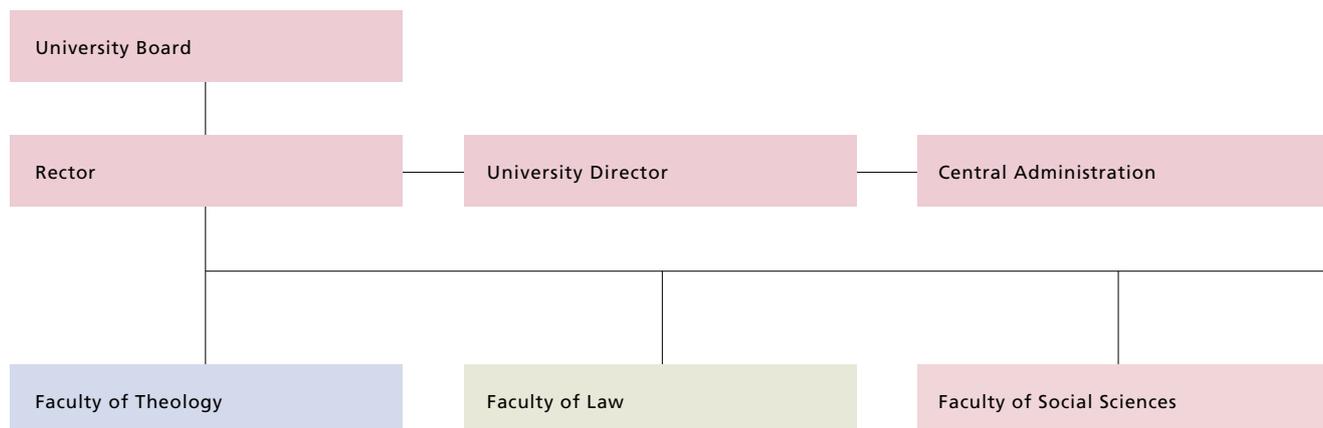
# Wedding present passed on

Competition for the best shot was keen among the press photographers in June when Crown Princess Mary awarded the very first *Crown Princess Mary Scholarship* at the University of Copenhagen.

**T**he scholarship was awarded to two Australian students – Pia Akerman and Andrew Fleming – from the Universities of Sydney and Adelaide, respectively. The two Aussies each received DKK 10,000, and HRH The Crown Princess wished her two former countrymen good luck with their studies – and with learning the Danish language. The scholarship was the University of Copenhagen's wedding present to the Royal Couple in 2004 and is intended to provide financial assistance to students in connection with stays in Denmark. The wedding present benefits students from the University of Copenhagen's partner universities in Australia – and students from the Crown Princess's alma mater, the University of Tasmania.

The two scholarships are awarded to students on the basis of an annual nomination from each of the universities. A committee appointed by the Rector of the University of Copenhagen then selects the two lucky recipients. Because students from partner universities may study here for free, the scholarships cover other expenses related to studying in Denmark. ■

## Organisation as of 1 January 2006



The Faculty is organised as a unitary faculty without departments and with sections directly under the Faculty.

*Centres:*

- Centre for African Studies
- Centre for Christianity and Art
- Center for the Study of the Bible in Theology and Culture
- Centre for the Study of the Cultural Heritage of Medieval Rituals
- Center for Subjectivity Research

The Faculty is organised as a unitary faculty without departments and with sections directly under the Faculty.

- Centre for Applied Computer Science
- Department of Anthropology
- Department of Psychology
- Department of Political Science
- Nordic Institute of Asian Studies
- Department of Sociology
  - Center for Housing and Welfare
  - Centre for Research in Existence and Society
  - Centre for Sexuality Studies
  - Employment Relations Research Centre
  - Co-ordination for Gender Studies
- Department of Economics
  - Centre for Industrial Economics
  - Development Economics Research Danida
  - Economic Policy Research Unit

## Faculty of Health Sciences

### *Theoretical Departments:*

- Department of Pharmacology
- Institute of Public Health
  - Medical Museion
- Department of Medical Biochemistry and Genetics
  - Wilhelm Johannsen Centre for Functional Genome Research
- Institute of Medical Microbiology and Immunology
- Institute of Molecular Pathology
- Department of Medical Anatomy
- Department of Medical Physiology
  - Danish Arrhythmia Research Centre
- School of Dentistry
- Institute of Forensic Medicine
- Institute of Eye Pathology

### *Clinical Departments:*

- Department of Clinical Neuroscience and Psychiatry
- Department of Diagnostic Radiology
- Institute of Gynaecology/Obstetrics and Paediatrics
- Institute of Internal Medicine
- Institute of Surgery and Anaesthesiology
- Institute of Oto-Rhino-Laryngology, Ophthalmology and Dermato-Venerology

## Outside the Faculties

- School of Oral Health Care

## Faculty of Humanities

- Department of English, Germanic and Romance Studies
- Department of Arts and Cultural Studies
- Department of Media, Cognition and Communication
- Department of Scandinavian Studies and Linguistics
- Department of Cross-Cultural and Regional Studies
- Department of Musicology
- Department of Scandinavian Research
  - Centre for Language Change in Real Time
- Saxo-Institute
  - Centre for Textile Research
- Centre for Language Technology

## Faculty of Science

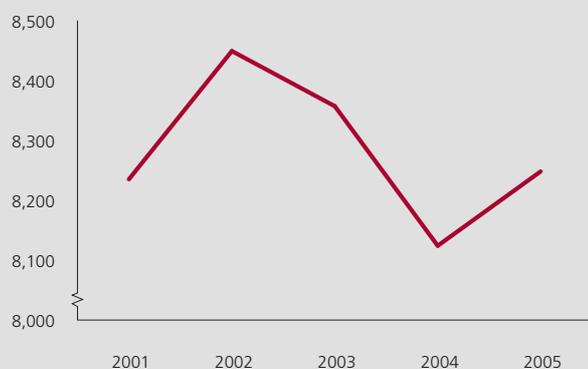
- Arctic Station
- Institute of Biology
  - Centre for Social Evolution and Symbiosis
  - The Øresund Aquarium
- Department of Computer Science
- Institute of Geography
- Geological Institute
- Institute of Exercise and Sport Sciences
- Institute of Mathematical Sciences
  - Centre for Mathematical Physics and Stochastics
- Institute for Molecular Biology and Physiology
  - Bioinformatics Centre
  - Danish Archaea Centre
- Institute of Chemical Sciences
  - Nano-Science Center
- Niels Bohr Institute
  - Centre for Models of Life
  - Centre for Molecular Movies
  - Centre for Quantum Optics
  - Danish Centre for Scientific Computing
  - Dark Cosmology Centre
- Natural History Museum of Denmark
  - Botanic Garden & Museum
  - Geological Museum
  - Zoological Museum
- Centre for Science Education
- Centre for Philosophy of Nature and Science Studies

# Key figures

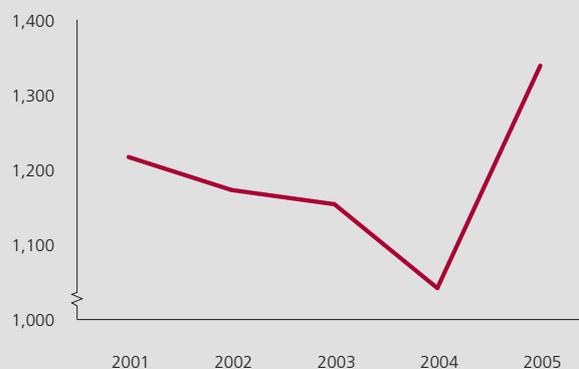
	2001	2002	2003	2004	2005
No. of students	33,801	32,595	32,314	32,270	32,586
No. of 60 ECTS credits*	16,452	16,502	16,493	16,478	16,978
Student intake as of 1 October	4,802	4,857	4,843	4,889	4,946
No. of first priority applicants	8,235	8,449	8,357	8,124	8,248
Average age of accepted applicants	23.7	23.9	23.8	24.0	24.0
Median age of accepted applicants	22.0	22.0	22.0	22.0	21.0
No. of Bachelors	2,488	2,743	2,708	2,821	2,811
Average age, Bachelors	27.0	27.0	26.9	26.9	26.9
No. of Masters	2,437	2,677	2,598	2,573	2,871
Average age, Masters	30.2	30.2	30.5	30.5	30.5
No. of tuition-paying students – 60 ECTS credits	1,153	1,151	1,178	1,073	768
Masters – full course of study (Master, Diploma)	93	120	101	224	139
Total no. of research education students as of 1 October	1,217	1,173	1,154	1,042	1,339
Students triggering internationalisation grants	1,401	1,462	1,559	1,691	2,079
Incoming exchange students	684	730	756	924	1357
Outgoing exchange students	717	732	803	767	722
Median completion time, Bachelors	4	4	4	4	3,4
Median completion time, Masters	7	7	7	7	7
Median age, Bachelors	26.0	26.0	26.0	26.0	25.4
Median age, Masters	29.0	29.0	29.0	29.0	29.0

\* 60 ECTS credits represent the workload of a full academic year of study.

No. of first priority applicants

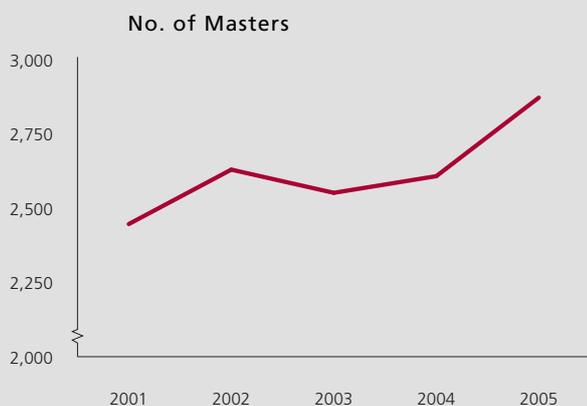


No. of research education students



# A year of progress and growth

The University of Copenhagen is performing very well. The number of students applying to study at the University of Copenhagen continues to increase, with the number of applicants now totalling close to 15,000 a year – about one third of whom are admitted. The first-year students are getting younger and younger. The average age of admission has fallen from 22 years of age to 21 years. The coming years will show whether this means that students will graduate at a younger age and be ready to enter the labour market earlier and whether the completion time – a University focus area – will continue to fall in 2005.



Growth was achieved in other areas as well. The number of students passing exams is on the rise. The focus on research education is also reflected in the performance figures for the year. The University of Copenhagen now has more than 1,300 research students, compared with just over 1,000 a year ago. The graduate turnout is also increasing rapidly. From 2004 to 2005, the turnout has risen by close to 300 graduates. The University's annual turnout of graduates is thus approaching 3,000.

The University's international focus is much in evidence. The number of exchange students triggering internationalisation grants increased by 23 per cent from 2004 to 2005; consequently the number of incoming exchange students to the University is almost double the number of outgoing exchange students. The University continually seeks to attract foreign students from universities on our students' top-priority list of exchange universities.

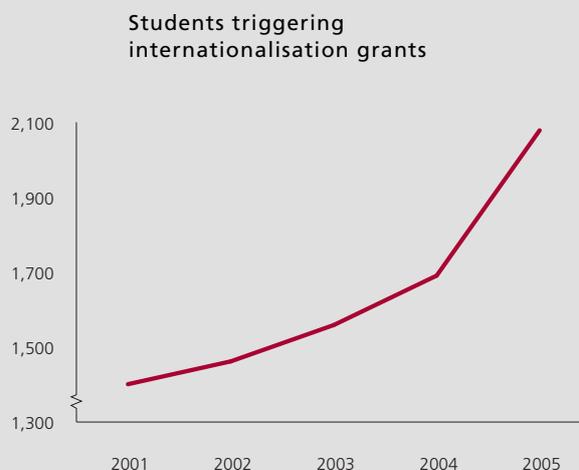
## Finances

On 1 January 2005, the status of Danish universities changed from government institutions to that of financially independent self-governing institutions. The change of status was founded in the provisions of the University Act on the transition of Danish universities to grant-funded institutions.

On 1 January 2005, the University also adopted new accounting policies in compliance with the Danish Government's budget and accounting reform. Under this reform, cost-based accounts are to be prepared. Starting in 2007, all institutions will be subject to cost-based grants on the Government budget. As part of the implementation of cost-based accounts, the University of Copenhagen has prepared an opening balance sheet as at 1 January 2005.

Finally, 1 January 2005 was also the day that the University adopted a new model of financial management with new requirements and procedures for budgeting, follow-up and financial reporting. As a whole, 2005 has been a year of extensive financial restructuring and adjustment. ■

*The Annual Report has in-depth information on the University's finances. The Report for 2005 is expected to be available in May. To download the report, log on to [www.ku.dk/aarsrapport](http://www.ku.dk/aarsrapport) from May 2006.*



## Meet the “stars” and feel the rush

*(continued from page 7)*

PHOTO: HEINE PEDERSEN

**Better study environment – and requirements**

According to Professor Hemmingsen the old elected management system contained a clear division of the research-related and the education-related management branches. And he feels that is the wrong way to go.

“If research-based education and a fast transfer of new research recognition to our programmes are important for the international competitiveness of our graduates, then we need a new structure that can combine research and teaching rather than separate them. There is too much silo thinking among them. At the management level, we could easily place

heads and directors of studies closer to the Faculty management than has been the tradition. That is one of the reasons why I think the University needs an education strategy committee that can establish a common framework for the programmes and study environments. However, I won't decide on who should make up the committee until the new management is in place.

*Should new demands be made of the students as well?*

“They need to be challenged,” he says with a smile.

“We already do that, because it's not that our programmes are bad today. But students should feel that there is actually someone who is interested in what they are doing before the day they submit their MA theses. They should feel that there is someone who has thought about and followed-up on things so that they develop academically throughout a course of study. But we also need to make demands. For instance, there should be a time limit for how long you may spend writing your MA thesis. If there are special circumstances, such as illness, then there should of course be some flexibility. There should also be time to start a family. But it just doesn't work that there is no time limit at all. It does not motivate students, and they lose their grip.” ■

UNIVERSITY OF COPENHAGEN  
UNIVERSITY LIFE 2005  
(ANNUAL REPORT 2005)

© University of Copenhagen, February 2006

**Publisher**

University of Copenhagen  
Communications Division  
Nørregade 10  
P. O. Box 2177  
DK-1017 Copenhagen K  
Denmark

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**Photographers**

Credited for the individual photos.

**Translation**

Scandinavian Translators A/S

**Printing and Reprography**

AKA-PRINT a/s, Aarhus

**Typography**

Adobe Garamond og Frutiger

**Paper**

Scandia 2000,  
130 gr./200 gr.

**Number printed**

3,000

ISBN 87-90655-42-7

ISSN 1601-3603

Additional copies can be ordered from:

fs-indkob@adm.ku.dk

**Exchange rates in 2005**

1 DKK equals approximately:

EUR 0.13 / USD 0.16



This printed material is marked with the Nordic environmental label, the Swan.  
Licence no. 541 312, AKA-PRINT a/s, Aarhus

## The Core Values of the University of Copenhagen

The University of Copenhagen contributes to development and growth in society through three inseparable activities: research, education and the exchange of knowledge.

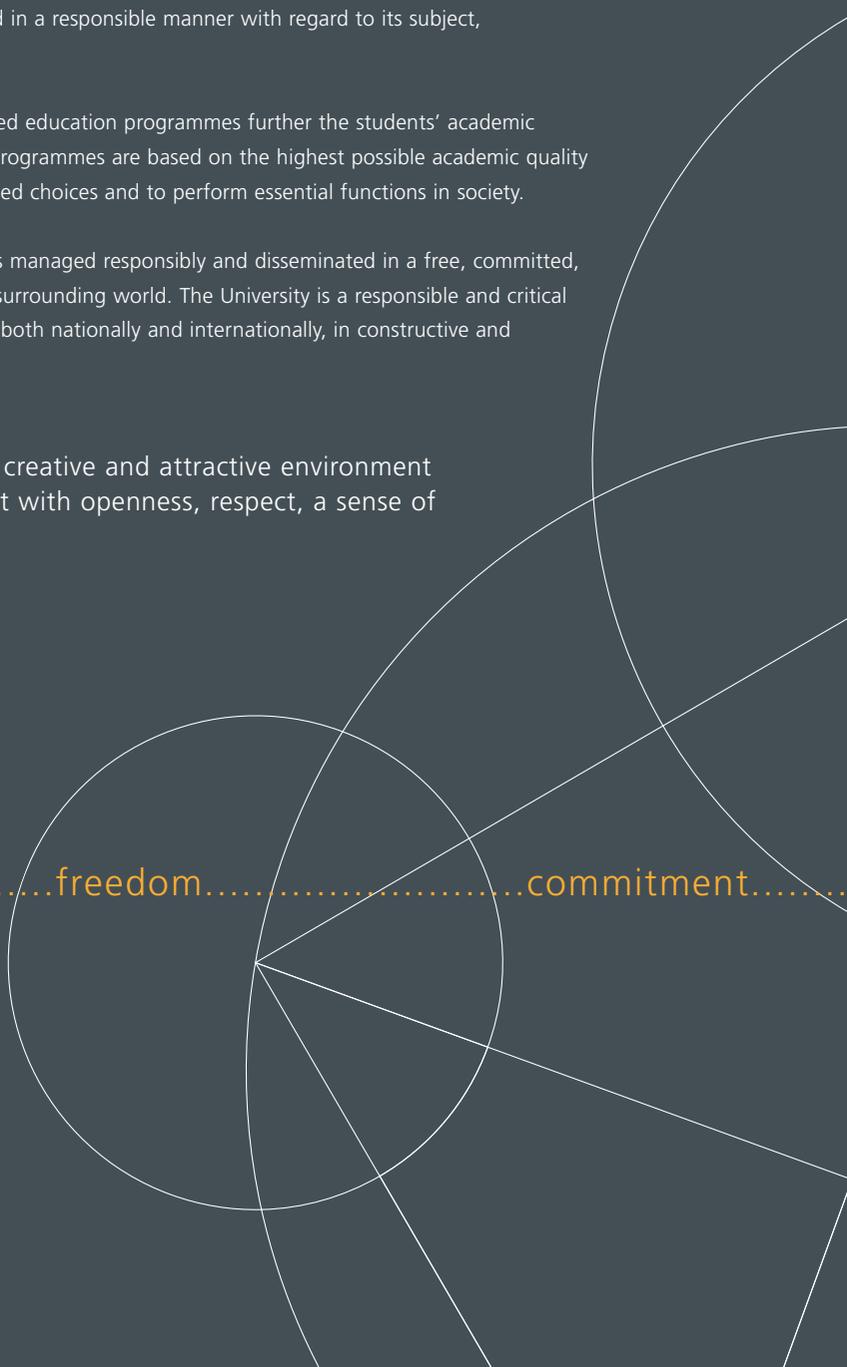
The University is unique in its academic diversity and continuously establishes new patterns for interdisciplinary work. Issues are perceived in broad academic and historical contexts.

The University's values come to expression through *truth-seeking, responsibility, freedom and commitment*.

- The University of Copenhagen's research is free from financial, ideological and political interests. The research extends the limits of awareness and challenges traditional ideas. At the core is the basic research, which is at an international level. The research is conducted in a responsible manner with regard to its subject, methodology and application of results.
- The University of Copenhagen's research-based education programmes further the students' academic competence, curiosity and independence. The programmes are based on the highest possible academic quality and foster the students' abilities to make qualified choices and to perform essential functions in society.
- The University of Copenhagen's knowledge is managed responsibly and disseminated in a free, committed, trustworthy and challenging dialogue with the surrounding world. The University is a responsible and critical participant in the public debate and takes part, both nationally and internationally, in constructive and binding partnerships.

The University's tasks are performed in a creative and attractive environment in which employees and students are met with openness, respect, a sense of community and co-determination.

.....truth-seeking.....responsibility.....freedom.....commitment.....



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