

UNIVERSITY OF COPENHAGEN



University Life 2003



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A year of change



PHOTO: NINA LEMVIGH-MÜLLER

The new University Act

An age-old tradition came to an end in 2003. A new University Act was passed that radically changed the way the Danish universities are managed. For 524 years, the Danish universities have had elected management bodies. The University Act now requires the establishment of actual University Boards, and every Rector, Dean and Head of Department must be appointed.

The new Act places more emphasis on management and governance at the highest managerial level as well as at the faculties and departments. A large number of departments have been combined, especially at the Faculties of Theology, Law and Humanities, and the number of departments has been cut almost in half since the beginning of 2003.

The University Performance Contract

It is now necessary for us to be able to measure the quality of research and to improve the quality of education. These were the two key targets in the 2000-2003 University Performance Contract, which presented the University with a two-fold challenge: on the one hand we need to maintain and strengthen the values upon which we build. On the other, we need to be even more open to change and progress. We need to keep tabs on demands of the public system and private companies; our graduates need to suit the labour market; and

we need to turn the knowledge produced at the University into utility value. But this only works in the long run if the quality is top-notch.

The University of Copenhagen chose, in 2003, three new Research Priority Areas to strengthen research and education programmes across disciplines and faculties, namely *Religion in the 21st Century*, *BioCampus* and *Body and Mind*. The researchers from these priority areas have quickly drawn public attention to their work and have helped set the agenda for some aspects of the social debate in 2003.

The external activities have been strengthened on other fronts as well. We have established a unit to deal more systematically with knowledge-sharing and collaboration between the University and the business community. It is located at the Faculty of Health Science and has been named the Tech Transfer Unit.

At the same time, we have established a common communications division, and in the course of the year, both a strategy and a policy have been drawn up for the University's communication.

In the area of education, the public debate has focused on, among other things, dropout rates and extended durations of study. The core of the discussion has been whether we educate academics just to send them into unemployment. Some of the main players in the debate have supported alluringly simple solutions: Reduce the number of humanities students and convince young people to study science instead. However, this is hardly realistic, and it is difficult to predict the future labour market. We are therefore more inclined to support a path in which the individual student is better prepared for life after graduation. The key is the desire to study. But students need to know what they are getting into – and what they will be faced with when they leave the University.

We have, therefore, decided to concentrate more on flexibility in our programmes and on making graduate competencies more apparent. The Faculty of Humanities has established a standard for the description of competencies as a supplement to its diploma. The Faculty of Science has embarked on the upcoming education reform and has already established greater flexibility and freedom of choice.

The internal logistics

The new University Act has required that changes be made in the area of internal management. The great variety and creativity that characterises – and must continue to characterise – the academic environments at the University of Copenhagen should not necessarily be reflected in the internal management. There should be a better correlation among the University Performance Contract, budgets and reporting. We need to possess the necessary tools to meet the more technical requirements of the University Act regarding capital and investment management, and we need to be well-disciplined in the use of these tools.

This is why we launched the financial management project, *KU2005*, in autumn 2003. The goal is to prepare the University for the transition from being an appropriations-funded state institution to being a grant-funded, self-governing institution. The financial key figures are satisfactory, but the cash-to-current-liabilities ratio is slightly below target, so the transition to self-governing status will require strict cash management.

The University Act is also based on the University properties being transferred to independent management. Over the centuries, the University of Copenhagen has received many buildings in donations, and a number of negotiations were required with the Ministry of Science, Technology and Innovation in order to reach an agreement as to which buildings belonged to the University and how they should be financed. The negotiations fell into place in the course of 2003, so we are now ready to implement the SEA (state property administration) rent scheme.

The new University Board

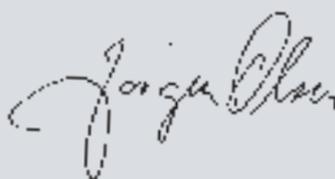
In 2003, the University has selected the six external members of the University Board:

- Bodil Nyboe Andersen, Governor of Danmarks Nationalbank (central bank)
- Claus Bræstrup, CEO, H. Lundbeck A/S
- Boel Flodgren, Professor in Commercial Law, Lund University
- Jørn Lund, Director, Society for Danish Language and Literature
- Henrik Topsøe, Manager of Strategic Research, Haldor Topsøe A/S
- Poul Erik Tøjner, Director, Louisiana Museum of Modern Art

As you can see, this is a very strong team, and we take it as a pat on the back and a vote of confidence in the University that they have all agreed to invest their time, commitment and experience in this important task. In the course of 2004, the University will select five internal Members of the Board. The Board takes charge on 1 January 2005, thus the University can expect yet another landmark year.



Linda Nielsen, Rector



Jørgen Olsen, Pro-Rector

Nano-center receives DKK 25 million

It was a good day for the University of Copenhagen's Nano-Science Center when it received a grant of DKK 25 million from the Danish Natural Science Research Council in early May 2003.



PHOTO: HEINE PEDERSEN

The money was part of the national focus on nanotechnology and nanoscience, and will be used to strengthen the Center's research in and work with inconceivably small units.

"Nanotechnology is a little like playing with blocks. The only difference is that you can't see the blocks you're playing with," says Thomas Bjørnholm, professor and head of the Nano-Science Center.

"Nanotechnology is all about utilizing molecules as building blocks in tiny structures."

At the molecular level

"The goal for nanoresearch is to understand and control nature at the level of individual molecules in order to ultimately be able to develop our own advanced nanomachines. You could say that the key to nanotechnology is an almost incomprehensible precision," says Professor Bjørnholm.

"A normal cup of coffee can be comprised of one million billion molecules. To put it simply, with nanotechnology, we can approach any one of these molecules directly: we can see what it does, we can move it around and we can

make it do something new. The result could, for example, be tiny nanocontainers that transport medicine around the body or monitor selected cells."

Currently, the researchers are testing, among other things, nanoparticles for use in the treatment of cancer. These particles become like tiny bombs that can be activated inside cancer cells. Their surfaces are coated with molecules that help them find cancer cells. The particles can then be triggered like bombs once they are in the vicinity of "sick" cells. □

Technological miracle in mini-format

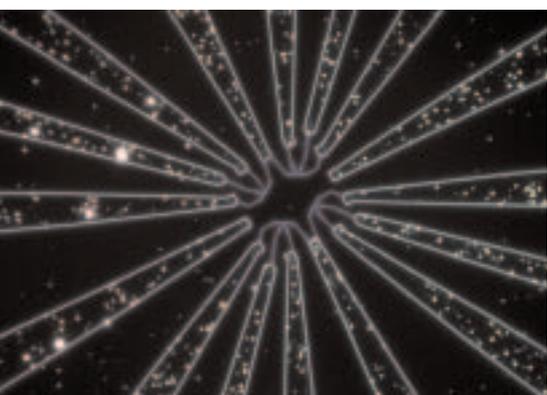


PHOTO: NANO-SCIENCE CENTER

In October, a European team of researchers headed by Professor Thomas Bjørnholm at the Nano-Science Center succeeded for the first time ever in creating a transistor out of a single organic molecule. This marks an important step towards creating infinitesimally small and fast computers.

The international team of researchers – comprising Professor Bjørnholm and researchers from Denmark, Sweden and Belgium – has spent years on creating

this tiny technological miracle. The breakthrough came when the group found the right organic molecules and successfully connected the three electrodes. This resulted in a transistor no larger than one-billionth of a metre – 100 times smaller than traditional transistors. The research team's breakthrough was described in the distinguished scientific journal, *Nature*.

The year's events 2003

Event highlights, quotes and notes from the year in review at the University of Copenhagen.

1.1. Rector of the University of Copenhagen, Linda Nielsen, becomes Chairman of the Øresund University.

8.1. Else Trangbæk, associate professor at the Institute of Exercise and Sport Sciences, is awarded the prestigious 2003 prize from *The International Society for the History of Physical Education and Sport (ISHPES)*. The 2003 prize is conferred on a sports history researcher who has distinguished him or herself in the fields of education and sports.

16.1. Rector Linda Nielsen is ranked 57th on the Danish journal *Dagens Medicin's* top 100 list of the most powerful persons in the health sector.

20.1. The Faculty of Law starts using its new courtroom, *The Ole Due Courtroom*, named after former President of the European Court of Justice, who teaches at the Faculty of Law. The new courtroom provides a boost to the University's moot court teams. Using state-of-the-art video conferencing equipment, the teams are now able to compete directly against teams from other countries. This is a great asset in their preparations for international moot court competitions.



PHOTO: CATHARINA WENDT

20.-21.1. The University of Copenhagen hosts the conference *The Digital Dialogue* on the launch of e-learning and online registration for exams, among other topics.

23.1. Associate Professor Niels Erik Møllegård, PhD at the Department of Medical Biochemistry and Genetics, receives DKK 470,000 from the Lundbeck Foundation earmarked for the study of the significance of the DNA structure in binding gene regulating proteins. This research may be important in the medical treatment of cancer.

23.1. Gertrud Pfister and Ulla Habermann, Institute of Exercise and Sport Sciences, are awarded DKK 300,000 by the Danish Ministry of Culture for mapping why so few women are represented on the leading associations in the world of sports.

Transistors are used in everything from computers to mobile phones. And according to Professor Bjørnholm, the organic transistor opens the way for fascinating future perspectives:

“For instance, if we take a computer, with our transistor we can install one million times as many transistors per unit. This means that the computer would be faster and more powerful, and that it would, size-wise, almost disappear. But it also paves the way for a future where we can build computers in entirely new ways – computers that are a cross between what we already know today and the way the brain works,” explains Professor Bjørnholm.

Organic computers

Actually, we already use organic materials today, for instance in mobile phone displays, but until now, researchers have not been able to produce a transistor based solely on one single organic molecule.

The students are flooding in

The University of Copenhagen's Nano-Science Center is a popular place to study. In fact, it is so popular that the Center has had to introduce restricted admission to the programme. In 2003, the Center admitted only 60 out of 106 applicants.

Those who have been admitted to the programme have embarked on a concentrated, inter-disciplinary undergraduate programme consisting of equal parts mathematics, physics, chemistry and biology supplemented by nanotechnology from the very beginning. Later, the students can specialise in a discipline that deals with the smallest units in nature.

“Our work primarily shows the correlation between the chemical properties of an organic molecule and the way the transistor works,” Professor Bjørnholm explains.

The advantage of building something using organic molecules instead of traditional inorganic materials like silicon is that it is possible to utilise the self-organising characteristics of biology and, thus, make the molecules organise themselves in the circuits you want to use. Self-organising molecules are a vital prerequisite for the production of what one day may be actual organic computers.

“However, the initial challenge will be to produce more stable organic transistors and to attempt to couple them in a well-defined way in a circuit structure,” emphasises Professor Bjørnholm. □

Students spend a portion of their studies in the laboratory, where it is possible to come into hands-on contact with the world of nanomolecules – quite modest in physical size, but of tremendous importance for, among other areas, medical science. For instance, they could be used in the making of a tiny nanomachine that can be introduced into the body and can indicate signs of serious illness.

This is still a thing of the future, but maybe not for coming generations of students. □

Time machine in two grams of soil

Two grams of frozen soil. That is enough for researchers to establish whether a mammoth lived in a specific area 30,000 years ago.

This discovery was made by two young researchers from the Zoological Institute in the spring of 2003. DNA analyses of a small amount of frozen soil from the Siberian substratum turned out to be able to solve the mystery of which species of animals and plants existed tens of thousands of years ago. A simple soil sample actually contains enough DNA for a sensitivity analysis to provide a printout of the entire prehistoric ecosystem. The discovery was published in the prominent scientific journal, *Science*.

“In a single two-gram sample of soil, we found DNA from, among others, mammoth, steppe bison, wild horse and a previously unknown species of musk ox. In another sample, approximately 300,000 years old, there were large

amounts of plant DNA. This really surprised us, because until now, the oldest verified DNA was only about 60,000 years old,” explains Eske Willerslev, who was, along with his partner Anders J. Hansen, a PhD student at the Department of Evolutionary Biology.

A sudden whim

“It’s not that our methodology is all that revolutionary in itself. It’s just that until then, no one had ever gotten the idea to analyse soil samples for the DNA of prehistoric animals. It seemed so inconceivable that it would be possible to find anything that no one else ever tried. For us, it all started as a sudden whim: let’s check it out – it could be possible,” Mr Willerslev continues.

The frozen Siberian substratum not only hides new information on prehistoric animals and plants. Earliest man has also left DNA in the soil. Thus, Mr Willerslev and Mr Hansen’s method also makes it possible to make entirely new discoveries about earliest man. And perhaps we might learn more about the first migrants to America.

Later in the year, the two researchers found 600,000-year-old bacteria DNA. This also originated from Siberia, and the discovery can revolutionise the future of Mars research. This is because this “robust” DNA is far more capable of surviving than the type researchers have focused on until now. The findings were published in *Current Biology*. □

Adventurer in the researchers’ club

Eske Willerslev, PhD, is curious by nature. This curiosity has brought him to Siberia – both as a trapper and a researcher.

A 30,000-year-old mammoth from Siberia, plant residues from Central Asia in the Greenland ice core, a 3 metre high, 200-kilo Moa – the extinct giant bird from New Zealand...

Eske Willerslev, PhD from the Zoological Institute, is here, there and everywhere – except home. He is even hard to catch by phone. There is always a new adventure around the corner. You can even say Mr Willerslev’s career

is an adventure. At the age of 32, he has just received his PhD and already has 25 publications under his belt.

Fossil DNA

The academic common denominator for Mr Willerslev’s research is “fossil DNA” – genetic material from fossils. This field of research made headlines in the 80s and 90s with news about traces of 80-million-year-old dinosaurs. But

the DNA samples were contaminated with modern DNA, and the stories were repudiated. The faith in this field of research has, therefore, not been all that great. But Mr Willerslev and his colleagues have fought to regain that faith by making tough demands for, among other things, double-checking findings.

“However, the most important thing is that the findings make sense in relation to the time the material originates



PHOTO: JAN JØRGENSEN/SCANPIX

from,” explains Mr Willerslev.

The focus on systematics by the researchers at the Department of Evolutionary Biology and on good ideas for possible applications and new analysis methods has helped the young researcher and his research to transcend boundaries, both geographical and academic. He is now sought after in many other fields of research – including Mars research.

His research is opening new, academic worlds and inspiring future research projects.

The trapper in Siberia

One of his upcoming projects will be to study the now vanished land bridge between Alaska and Siberia. Siberia is a recurring aspect of Mr Willerslev’s research, undoubtedly because alongside his biology studies he lived out his childhood dream there.

For six months, he lived in total isolation as a trapper in the Siberian wilderness in Yakutia. A total of four trips to Siberia together with, among others, his twin brother Rane, has ensured them both membership in the Adventurers’ Club of Denmark. And just as it was in the past, it is neither the prospect of success nor financial reward that drives him to seek new adventures.

“I have always been fascinated by attempting to discover unknown worlds or to recreate prehistoric landscapes. Whether it’s by travelling out into the wilderness or by trying to reconstruct in my head the ecological systems of Greenland before the ice age, it’s governed by my curiosity,” says Mr Willerslev.

He is currently working under more civilised conditions at the University of Oxford which has appointed him, in collaboration with the University of Copenhagen, to a postdoc position. He has not yet decided where his next adventure will take him, but he has several jobs lined up abroad.

“I’d prefer to return to Denmark to do research. The Danish research environment is very unique, primarily because of the fact that Danish students have learned to think for themselves. However, the problem is that with the current financial situation, there aren’t many vacant positions – and if the right position isn’t available, then I’ll accept one of the offers abroad,” he concludes. □

30.1. Professor Eva Smith, LL.D. at the Faculty of Law, receives the DKK 40,000 jubilee award from the *Danish Federation of Professional Associations*. The award is conferred on a person who has distinguished him or herself in the public debate.

1.2. For the first time, the Legal Debating Society runs for the Faculty Council and has a member elected on a policy of not moving the Faculty of Law to Ørestad.

4.2. Professor Jes Olesen, MD at the Department of Clinical Neurosurgery and Psychiatry, receives the *Kleins Grant* of DKK 150,000. The Grant is a personal honour and is conferred on Jes Olesen for his groundbreaking headache research.

7.2. “The political call for more prisons reflects a new, more selfish view of human nature. We are suspicious of our fellow human beings, expecting the worst. Lack of trust in others makes constant control necessary.” Professor in Sociology of Law Flemming Balvig, Faculty of Law, to the Danish daily *Information*.

13.-14.2. Department of Nordic Philology marks the Department’s relocation to its new premises on the KUA campus by staging a conference themed *Hvad er så danskhed?* (What is Danishness then?) with talks by department researchers and politicians who have distinguished themselves in the public debate on Danishness, its characteristics and potential threats against it.

19.2. Two young researchers, Eske Willerslev and Anders J. Hansen, Zoological Institute, reveal the origin of the mysterious Andaman pygmies. For a large number of years, researchers have tried to establish the origin of this tribe, living on the Andaman Islands south of India. The first genetic analyses show that the pygmies are probably direct descendants of primitive African tribes.

23.2. The EU team wins the regional final of the *European Law Moot Court Competition* in Bratislava. This is the first time a Copenhagen team of law students gets this far in the competition. See page 35.

24.2. The Faculty of Science joins forces with the Danish daily *Politiken* to host an evening of talks on astronomy and the history of the universe, followed by a tour of the old observatory at Rosenborg Bastion. The response of *Politiken*’s readership to the invitation to attend the event was so overwhelming that the event had to be repeated no less than six times.

25.2. Professor Olaf B. Paulson, MD at the Department of Clinical Neurosurgery and Psychiatry, is awarded the *Lundbeck Research Prize*. The Prize is for a total of DKK 1 million; DKK 400,000 of which is a personal honorary award, while DKK 600,000 is earmarked for the research conducted by the recipient.



PHOTO: NASA/JPL/CORNELL

Danish magnets on mission to Mars

At the beginning of June, the Danish Mars researchers from the Niels Bohr Institute and others, sat on the edge of their chairs. At that time, NASA was preparing to launch two rockets with the best technology could offer in lieu of living, breathing geologists – the so-called rovers.

The rovers are robotic vehicles equipped with sight, arms and instruments designed, among other things, to help establish whether Mars' red colour originates from flowing water or whether it is caused by other processes. At the front of each rover there are seven magnets designed to capture airborne dust and non-magnetic material. These magnets were designed by researchers from the Niels Bohr Institute.

The head of the Institute's Mars team, Morten Bo Madsen, spent several months at a training camp in California to practice manoeuvring the remote control robots. And although the Mars team has had magnets on Mars before, this mission was far more advanced in its scientific equipment – and, thus, far more nerve-racking. Would it work?

It is no secret that the rovers landed safely six months after the launch. In January 2004, the rover robots *Spirit* and *Opportunity* landed, and the actual exploration of the surface of Mars could begin. □

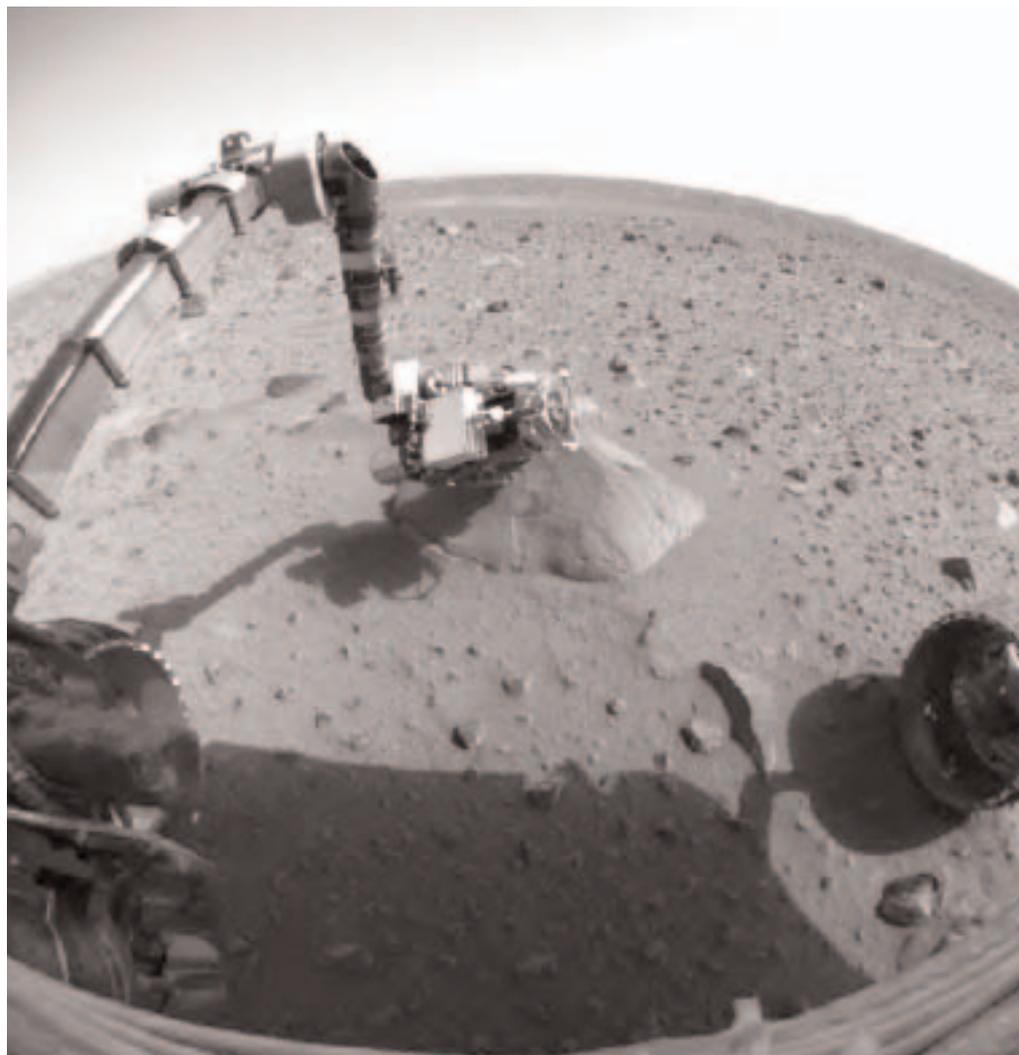


PHOTO: NASA/JPL/CORNELL

A piece of Mars

The Geological Museum gave itself a unique Christmas gift in 2003: a rare meteorite from the Red Planet.

The unusually large meteorite is a piece of volcanic rock the size of a fist and weighing more than 400 grams. It is quite a find for the Museum, because it is very rare to find Mars meteorites of this size. Furthermore, the new meteorite is only one of 29 known meteorites from Mars.

The meteorite was found in the summer of 2000 in the desert area of Sayh al Uhaymir in Oman, and has, thus, been dubbed Sayh al Uhaymir 051. It was found along with a number of other fragments that presumably hit Earth several thousands of years ago. The "new" meteorite is estimated to be about 1,300 million years old.

A unique opportunity

The Mars meteorites are the only material we have access to from another planet. It gives researchers a unique opportunity to test their theories on the evolution of Earth.



PHOTO: HENNING HAACK

But why do we even find pieces of Mars here on Earth?

"That's because like Earth, Mars is hit by an asteroid once in a while," explains Henning Haack, geologist and associate professor from the Geological Museum.

"It happens more often on Mars than on Earth because Mars is located on the edge of an asteroid belt. When an asteroid hits Mars, large craters are formed, and in rare cases, small pieces of rock are catapulted free of the planet's gravity field. The pieces then float around in the solar system for several million years. Individual pieces sometimes land on Earth where we can be so lucky as to find them," explains Mr Haack. □

The Mars meteorite was quite a crowd-puller. In the days between Christmas and New Year's, 400-500 more guests visited the Geological Museum than normal.

27.2. A positive and relevant CV from their student years may be of vital importance for new graduates in search of a job. This is one of the findings of the graduate survey conducted by the University of Copenhagen sub-titled *Hvordan gik det kandidatårgang 1999?* (What happened to the Class of 1999?)

3.3. Berlingske Tidendes Nyhedsmagasin appoints 25 female business and professional leaders to act as standard-bearers for various sectors and industries. Among these is Rector Linda Nielsen.

10.3. According to a survey conducted by ISI*Thompson Scientific, science researchers from the University of Copenhagen are, on average, quoted more often than their foreign counterparts. However, the survey points to quite significant differences between the individual departments of the Faculty of Science.

13.3. Rasmus Pilegaard, student of economics, is awarded the Euroclear Grant for his paper: "Extracting the Risk Premium from the Euro Area Money Market." See page 27.

2.4. Assistant professor Tord Labuda, PhD at the Institute of Medical Microbiology and Immunology, receives DKK 50,000 from the LEO Pharma Research Foundation earmarked for finding new points of attack for medical cancer treatment.



PHOTO: MICHAEL LOUJA

7.4. Associate Professor Milena Penkowa, PhD at the Department of Medical Anatomy, is awarded DKK 1.5 million from the Lundbeck Foundation to further develop the protein metallothionein (MT) which has the potential for treating patients suffering from sclerosis, Alzheimer's and Parkinson's disease. The three disorders all destroy human brain cells.

10.-18.4. A team of Danish law students receives top rankings at the international moot court competition in Vienna. 128 universities from all over the world participate in the moot competition and the team wins third place for oral presentation, third place for best memorandum for claimant and second place for best memorandum for respondent. The moot competition is the largest of its kind in the world and involves finding the best negotiator in fictitious arbitration proceedings.

Research in deep waters



PHOTO: HEINE PEDERSEN

The “grand old man” of deep-sea research, 84-year-old Torben Wolff, is still in good form at the University of Copenhagen, and in 2003 he was awarded a medal for his life-long work to reveal the secrets of sea to us all.

If you ask Emeritus Professor Torben Wolff, lecturer and PhD, what the high point of his long career was, he answers without hesitation:

“The high point occurred onboard the sea-research vessel *Galathea* on 21 July 1951, on my 32nd birthday, where we drew up a trawl with live specimens from a depth of 10 kilometres in the Philippine Trench. That’s where we found the first proof that life exists everywhere in the sea – even under the most extreme pressure and in permanent darkness.”

The walls of his small office at the Zoological Museum are decorated with crabs and shrimp, photos from expeditions to South Sea islands and of exploration vessels he has sailed with over the decades. Hanging in a frame, there is also the certificate of baptism Professor Wolff received from King Neptune the first time he crossed the equator. The King dubbed him Taoro. It was just after the Second World War and Professor Wolff was in the middle of his zoology studies.

“I was so lucky to have a unique opportunity to participate in an expedition to West Africa, and like everyone else, I had felt the Occupation as an insufferable confinement for five long years. The wealthy sculptor Viggo Jarl had made his three-masted yacht, *Atlantide*, available for the expedition,” he explains.

In October 1945, the vessel embarked down the only mine-swept corridor in the North Sea to explore the animal life along the coast of West Africa.

“The waves took our lifeboat and knocked the gold ornaments off the stern, but we managed to return in one piece.” The exhibition lasted 10 months, and the findings ultimately filled 13 volumes.

The *Galathea* Expedition

In 1949, he became equipment manager for the legendary *Galathea* Expedition. During its journey around the world, the expedition was to explore the deep sea and its life. The *Galathea* Expedition attracted a good deal of attention, and their findings are still published today. According to Professor Wolff, no single Danish scientific project can compare with the *Galathea* Expedition, to which he thinks he was invited because of his open mind and his good administration skills.

“Those are good qualities when you’re on a long voyage and the conditions are, at times, cramped and tough. My professional expertise has since entered the picture,” he adds.

Over the years, he has taken part in a large number of international deep-sea expeditions and given lectures all over the world. He wrote his doctorate on deep-sea crustaceans, and in 1957 he was hired as a curator for the very ex-

tensive crustacean collection at the Museum.

“I still am, and I will continue on until they have found a replacement.”

His medal and his health

Professor Wolff’s interest in the history of science has led to several biographies and books on, among other topics, the history of Danish sea research. And in 2003, the Fulbright Chapter at the University of North Carolina awarded him the *Sir George Deacon Medal* for his great contribution to our understanding of the sea and its animal life as well as for building a bridge between oceanography and the communication of science in a historical perspective.

But how does he handle an eight-hour workday – including two editorial positions – so well?

“Good health,” is his response.

“I ride my bike every day and in all kinds of weather. And I would never dream of taking an elevator. Taking the stairs is good exercise and even saves electricity.”

But that is not to say that Professor Wolff is a health-freak. He concludes with a gleam in his eye, as he takes a puff of one of the two cigarettes he allows himself a day:

“You might say I’ve burned my candle at both ends, but as you know that just provides more energy for the part in the middle.” □

Ice cores tell about the climate



PHOTO: NIELS BOHR INSTITUTE

It took seven years. But finally the researchers reached their goal: the underside of Greenland's ice cap.

In the summer of 2003, the participants of the NGRIP Project, a Danish-led international project, finally succeeded in extracting a 3,085-metre-long core out of the ice. Afterwards, they packed the world's longest ice core from Greenland in boxes for transport to five or six laboratories around the world. In coming years, researchers will begin to explore the mysteries of the ice to discover how the last ice age developed. It is all about climate change.

"We are going to measure various indicators that can provide us with information on how great the temperature changes were, and how fast. At the bottom, the ice is more than 120,000 years old and stems from the warm period that preceded the last ice age – the so-called Eem Period. At that time, the climate was warmer and more unstable than it is now, and the question is whether it is the heat that made it unstable. Since we're currently experiencing rising global temperatures, it would be interesting to know," explains Anders Svensson, assistant professor at the Niels Bohr Institute.

Not for another 5,000 years

However, he sees no reason for us to be afraid that an ice age will hit us right away.

"The coming of an ice age is closely related to changes in the Earth's orbit around the Sun as a result of influences exerted by other planets. And it does not look like that will happen within the next 5,000 years," explains Mr Svensson.

During the drillings, which have taken place for three months every summer since 1996, the team behind the project has run into a number of problems, among them were the jamming of the drill near the bottom and difficulties in finding funding because the project was delayed by four years.

Thus, the 25 participating researchers – from various European countries as well as Japan and the USA – had good reason to pop the champagne corks last summer when the drill reached the bottom. □

14.4. According to the survey *Europe's Eminent Economist*, conducted by Zurich University, Professor of Statistics Søren Johansen, Institute of Mathematical Sciences, is Europe's most frequently quoted researcher in economics literature in the years 1990-2000. The survey counts the number of quotes by the most frequently quoted researchers in 200 of the leading international economics journals.

15.4. Professor Erik A. Richter, MD at the Institute of Exercise and Sport Sciences, is awarded DKK 250,000 by the Danish Diabetes Association. The award money is for research in metabolism regulation and insulin sensitivity in diabetes patients.

22.4. "Doing more sport and exercise in upper-secondary school would benefit students for the rest of their lives in line with the benefits they achieve from other aspects of the general all-round education in upper-secondary school. A number of lifestyle diseases may be prevented if students learn from a young age the joy of being fit for life." Associate Professor Bente Kiens, PhD (Sc.), and Professor Erik A. Richter, MD at the Institute of Exercise and Sport Sciences, in the Danish daily *Berlingske Tidende*.

22.4. Associate Professor of Biomedicine Lisbeth E. Knudsen, PhD, Institute of Public Health, is to head an international research project on the effects of air pollution on the health of children. The aim of the project is to identify hazardous factors, while at the same time highlighting initiatives to ensure a healthy development in children. The three-year project receives DKK 7.4 million in funding from the EU.



PHOTO: JAN BUJUS

24.4. Two younger Greenland researchers and story-tellers Kirsten Thisted, Department of Nordic Philology, and Karen Littauer, graduate in psychology, are presented with the new diploma award, totalling DKK 150,000, from the Hartmann Foundation for their joint and original efforts in Greenland cultural studies.

25.-27.4. Faculty of Humanities hosts the Humanities Festival, boasting more than 50 events over the weekend. During the festival, the Faculty's new premises at Ørestad are officially opened. See page 20.

28.4. The University hosts a public debate meeting on the legality of the war in Iraq for a full auditorium at Studiegården. See page 27.

Hope for infant victims of malaria

The findings of two research projects raise awareness of malaria and secure millions of dollars for prevention.

In 2003, the PhD studies undertaken at the University of Copenhagen by the Tanzanian researcher, Dr. Julius J. Massaga offered new hope for millions of infant victims of malignant malaria. Last autumn the findings of his research were contributory in generating a 28-million-dollar donation to malaria research from Bill Gates and wife, Melinda. The computing billionaire couple donated this huge sum to projects such as the one to test the anti-malarial drug *amodiaquine* more extensively than was feasible for Dr. Massaga while he was attached to the University of Copenhagen.

Dr. Massaga's research demonstrated that the risk of contracting malarial fevers and secondary anaemia is reduced by 65 per cent in the first year of life if the infant receives three prophylactic treatments with *amodiaquine*.

"Our findings and results from other studies demonstrate that preventive treatment is of huge importance in controlling pernicious malaria in infants," says Dr. Massaga, who was the lead author in the article published in the prestigious scientific journal, *The Lancet*.

Thousands of children

Ib Bygbjerg, Professor and Project Manager, Anita Rønn, Senior Lecturer, and Thor G. Theander, Senior Lecturer, all from the Institute of Public Health, contributed to the study and co-authored the article.

"In Julius Massaga's project, *amodiaquine* was administered to 150 infants in Tanzania. Now this, and other anti-malarials, individually or in combi-

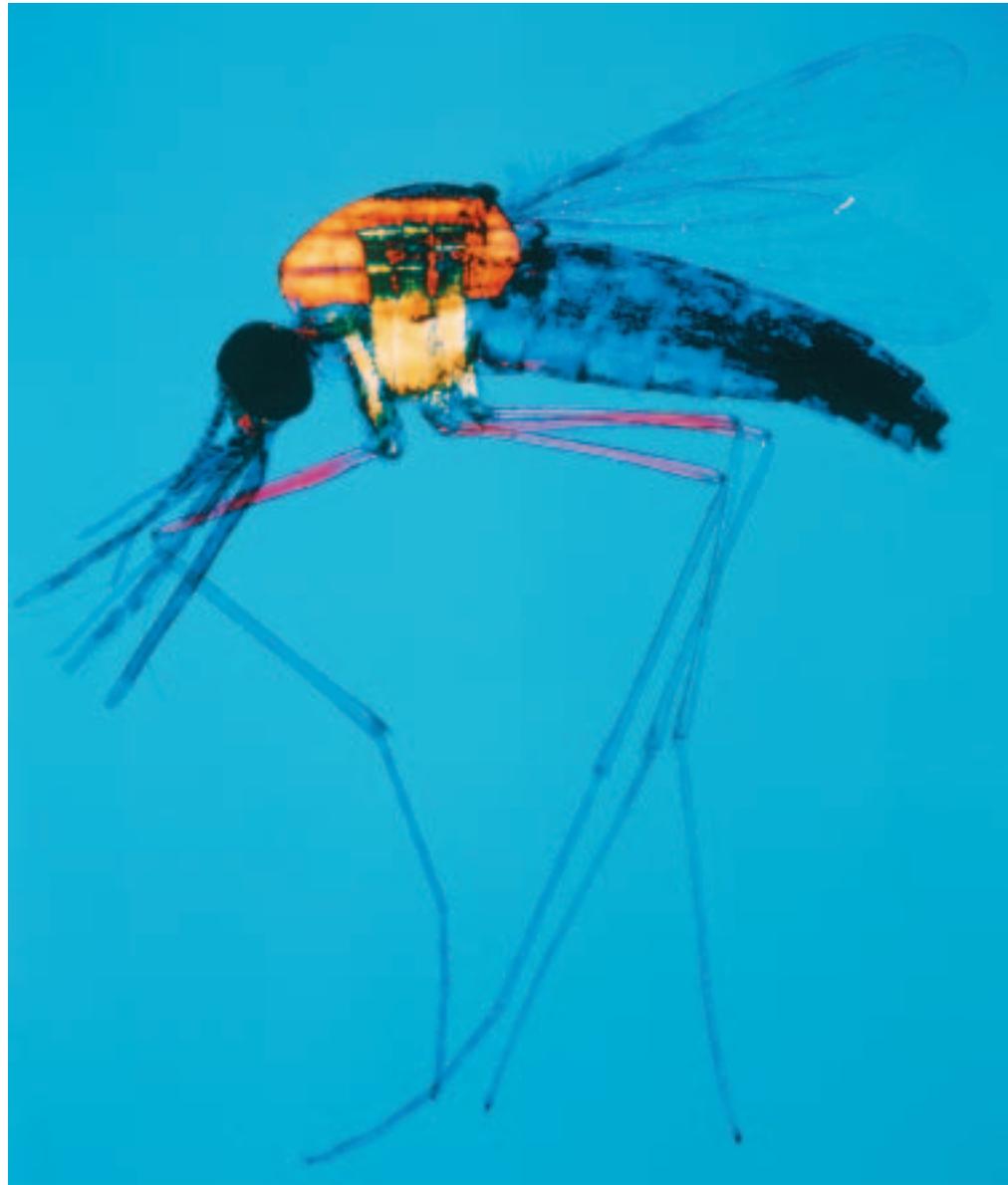


PHOTO: SCANPIX / A. PASIEKA

nation, will be given to thousands of children," explains Professor Bygbjerg concerning the Gates Foundation's funding for future research.

Sub-Saharan Africa especially is afflicted by the pernicious malaria that is one of the most common causes of death in infants and young children.

The problem is aggravated by the fact that pernicious malaria – or rather the parasite that causes the disease – has in many regions become resistant to established anti-malarial drugs.

The London School of Hygiene & Tropical Medicine is the main architect of this large-scale project. The Danish

researchers and local Tanzanian partners are actively engaged in the studies in Tanzania, while similar sub-projects are underway in other countries on the African continent.

Mosquito nets help

Another research finding from the Institute of Public Health demonstrated in 2002 that the importance of the mosquito net is not to be underestimated in the fight against malaria. Michael Alifrangis, PhD, conducted his three-year research project involving children under five years of age in two villages in North-Eastern Tanzania in collaboration with Tanzanian researchers.

The inhabitants of one village were provided with insecticide-treated nets (ITNs) in 1998, those of the second village not until 2000. In both villages the drug combination *S/P* was used for the treatment of malaria cases. The researchers then went on to study the development of resistance in the malaria parasites to the drug in the two villages. Resistance was already relatively high in the region and the findings were conclusive.

Less resistance

Michael Alifrangis, the main author of a scientific article published in the summer of 2003 in the *American Journal of Tropical Medicine and Hygiene*, explains:

“Our study demonstrated that where ITNs were used, children suffered fewer mosquito bites and hence fewer malaria infections. They were consequently afflicted less frequently and hence presumably treated on fewer occasions with *S/P*. This meant that the parasites did

not develop such extensive resistance to the drug.

Resistance occurs when the genes in the malaria parasite mutate. But it would appear that the more ITNs are used, the less prevalent are the mutations,” Mr Alifrangis explains.

In the journal, lead writer Peter A. Zimmerman gave prominence to the findings of the study. He points to the fact that the use of ITNs serves to protect the efficacy of existing first-line anti-malarial drugs. And this is an important point.

“The problem is precisely that we don't have many alternatives to the old anti-malarials. There are only a few, and often expensive, new drugs to introduce. The advantage of the nets is therefore that they help to delay the development of resistance – and may even reverse the trend,” says Mr Alifrangis. □

30.4. The GBIF Secretariat is inaugurated by HRH Prince Henrik of Denmark. The new building, donated by Aage V. Jensens Fonde (foundations), is an extension to the Zoological Museum. That same day, the Zoological Museum opens the special exhibition *Milliarter* about the millions of animal species found on planet Earth.



PHOTO: GBIF

6-8.5. The Institute of Archaeology and Ethnology hosts the *29th Nordic Congress of Ethnology and Folklore* in Helsingør, entitled Cultural Processes in Europe.

8.5. The new University Law is adopted by the ruling coalition partners of the Danish Government, the Liberals and Conservatives, with the support of the Social Democrats and the Christian Democrats.

12.5. Associate Professor Lene Waage Petersen, Department of Romance Languages and Literature, is awarded the *Italian National Translation Prize* for her Italo Calvino translations. The prize is presented by the Italian President, Carlo Azeglio Ciampi, during a ceremony in Rome.

19.5. Professor Inger Kjær, MD and DDS at the Institute of Odontology, receives a grant of DKK 30,000 from *Direktør N. Bang og hustru Camilla Bang, née Troensegaards, Legat* (grant). According to the by-laws, the grant should be conferred on "a woman who has distinguished herself by virtue of her university training".

20.5. The University of Copenhagen signs an agreement with Research Centre Risø. The agreement is designed to strengthen the research and education cooperation between the two institutions.

27.5. Rasmus Schjødt Pedersen, student of political science at the Department of Political Science, is awarded a grant from Crown Prince Frederik's Foundation. Rasmus Schjødt Pedersen plans to use his grant for a 1-year study period at Harvard University in the USA. The topic is European-American relations. The award is presented by HRH Prince Frederik of Denmark at Chr. VIII's Mansion (part of the Royal Amalienborg Palace).

28.5. HM Queen Margrethe II of Denmark signs into law the new University Act, adopted by the Danish Parliament on 8 May.

Healthy without fruits and vegetables



PHOTO: MOGENS MORGEN

In 2003, a group of trappers from Greenland had to ride exercise bikes, while 16 Danes were selected for a tough ski trip in the area round Thule, Northern Greenland. Both activities form part of a large-scale research project, which the Danish Broadcasting Corporation has decided to give in-depth coverage.

How does a trapper in Greenland, who never eats six fruits and vegetables a day – as recommended by the Danish National Board of Health – and basically lives on meat and blubber, avoid suffering from the so-called “lifestyle diseases” of the Western world? And why does a Dane with a taste for steak, red wine and sweets suffer from obesity and type-2 diabetes?

A large-scale research project under the auspices of the Copenhagen Muscle Research Centre will attempt to answer these questions. And viewers of the

Danish Broadcasting Corporation (DR) will also have the opportunity to follow the progress of the project – more precisely the part involving the 16 Danes skiing in North-East Greenland. The project is divided into two stages, of which the first took place in October: At that time a group of trappers from Greenland rode exercise bikes in Qaanaaq in North-West Greenland to have their muscles measured.

For the next stage, the 16 Danish volunteers will be selected and prepared for a 450-500 kilometre-long ski expedition

originating from Thule Air Base in March 2004.

The purpose is to compare the muscle capacity of Greenlanders and Danes as well as the ability of their muscles to work – more precisely by measuring the burning of fat and sugar.



PHOTO: MOGENS MORGEN

Healthy without "six a day"

Part of the reason why the trappers appear healthier than Danes is undoubtedly that they get far more exercise than Danes. The question is, however, whether that is the whole truth. Could it also be possible that the trappers are genetically programmed with a different type of metabolism?

"My hypothesis is that the genetic differences may play a role with regard to physical activity – that Greenlanders have developed a kind of encoded protection with regard to a high-fat diet, as long as they also get plenty of exercise,"

explains Jørn W. Helge, associate professor at the Department of Medical Physiology.

The 16 participants have been selected from among 500 applicants and will travel to North-East Greenland in spring 2004. The participants – six women and ten men – are between the ages of 22 and 46.

Half are students from such fields as philosophy, medicine, communication and sports science, while the other participants include a veterinarian, a physiotherapist, a publisher's secretary and a communications manager. □

PHOTO: MOGENS MORGEN



The Copenhagen Muscle Research Centre has existed for ten years and is comprised of a number of research teams from the Faculties of Science and Health Science and from the Copenhagen University Hospitals – Rigshospitalet and Bispebjerg. The University of Copenhagen and the Copenhagen Hospital Corporation collaborated in 2003 to provide joint financing after funding from the Danish National Research Foundation expired.

1.6. The University's anniversary. It has been 524 years since King Christian I inaugurated the University of Copenhagen in 1479.

3.6. HRH Crown Prince Frederik of Denmark presents DKK 36,000 from Crown Prince Frederik's Foundation to geophysicist Henning Haack, the Geological Museum. The award money is earmarked for funding an expedition in search of meteorites in North-East Greenland.



PHOTO: STEEN BROGAARD

5.6. The Danish daily *B.T.* publishes a list of 50 "Danish darlings". The 50 women on the list have in various ways distinguished themselves in today's Denmark and are all popular and well-liked. Linda Nielsen, Rector of the University of Copenhagen, is among the women on the list. Being the first female Rector of the University, Professor Nielsen is "fast at work putting a more human face on the honourable institution," writes *B.T.* The paper also notes that "it takes a special panache for female business and professional leaders to achieve 'darling' status."



PHOTO: MAAAS DIGITAL LLC

8.6. NASA launches the first of two robot rovers, bound for Mars. The spacecraft carries 20 magnets designed by researchers at the Niels Bohr Institute. The Danish magnets are designed to capture dust from the Red Planet to help improve our understanding of the formation of the planet. See page 10.

11.6. The Zoological Museum receives the *Danish Museum Prize* for DKK 500,000, instituted by the Bikuben Foundation, in recognition of the Museum's success in attracting the new GBIF Secretariat. The prize will be used, in part, to strengthen the Museum's online provision of scientific collections and, in part, to set up a better special exhibition area.

Obesity researcher with discipline and drive

She has been the Danish Champion in floor gymnastics and she was on the All-Denmark gymnastics team as a teenager.

Now she is the mother of two-year-old twins, works more than 37 hours a week and was honoured last year with the title of *Obesity Researcher of the Year*.

It sounds like a powerful cocktail of discipline and drive, and that is very close to the truth. Desire is the driving force for 32-year-old Birgitte Holst, PhD student in medicine.

“I love my work and am very enthusiastic about it. And it is actually perfect in combination with having kids because it is so flexible and you can plan your own workday. That’s why I’ll probably never become a doctor,” explains Ms Holst.

She got involved with research when she studied medicine – “an amazing field” – at the University.

“I took a leave of absence from my studies to do research, and I became deeply involved. Since then, I’ve spent practically every weekend and holiday on it – well, I’ve also been on holiday in Malaysia and Indonesia – but it is very satisfying. Being able to go into detail and having the peace and time to decide on your own what you want to do research in and test your ideas about.” That may explain why she has not been tempted by the private sector yet, although she works as a consultant in connection with the start-up of new biotech companies.

Ms Holst would rather spend the near future on more in-depth studies in obe-



PHOTO: HEINE PEDERSEN

Birgitte Holst is very enthusiastic about her research in the mechanisms of appetite. In 2003, she was honoured as the Obesity Researcher of the Year.

sity research on the sixth floor of the Panum Institute, and has received funding for two more years. But she cannot continue to work until late in the evening, for now she has a family life on the side with a husband, who is also a doctor and researcher, and the twins.

Research into a receptor

She received Abbott’s obesity research award for her research in the *Ghrelin hormone’s receptor* – a tiny molecule located on brain cells that tells the body when it is ready to eat.

“For primitive humans, it was a good idea to be driven to eat every time they saw something edible. It was necessary for survival. But it may not be so practical today, when we are constantly presented with food. That is why the pharmaceutical industry is very interested in developing a substance that can

block or moderate the desire to eat,” she explains.

It is actually quite accidental that Ms Holst became so interested in hormones, although she has always been interested in diet and food consumption. Perhaps it is because she was put on a scale very Sunday morning when she was on the gymnastics team.

“We were judged for our physiques and our body structure, so we quickly learned what foods were healthy and what were not. So I’ve been aware of it for a long time. But even though I think I live a healthy life today, my mother probably wouldn’t agree,” laughs the young researcher. □

The Bible – now in colour

Dramatic, colourful images of idols and objects of hate, of faces from the local community and with a rather loose connection to the word of the Bible. Is this Denmark's Christian cultural heritage?

"Yes," said Axel Bolvig, professor in frescos at the Department of History, in summer 2003 when his highly-praised book *Den ny billedbibel* (The new picture Bible) was released.

With its interpretations of the many well-preserved Danish frescos, the work is a tour of the religious universe of the Danish Middle Ages.

For it was through pictures that biblical stories were presented to the illiterate Danes at that time.

"The confined textual aspect wasn't the focus at that time. The visual experience was – the personified and the action-oriented. It's not that the frescos

are not religious, but they reflect something completely different from the written word of the Bible. They have gone through many oral stages and have been interpreted. It shows us another more down-to-earth account of faith," explains Professor Bolvig. One example is the relationship to women.

"Down through the ages, the ecclesiastical authorities have been fond of blaming women. But the frescos give us a more balanced picture of the role woman played in society. She appears as the one who took action and attended to things. On the other hand, man sometimes appears in a negative light, as a whistle-blower," says the professor, referring to a fresco in Birkerød, North of Copenhagen, where Adam points to Eve in the Garden of Eden. □



PHOTO: AXEL BOLVIG

Many of the University's researchers publish books each year. In 2003, the anthology on gene technology, *Der må være en grænse!* (There must be a limit), edited by Kasper Lippert Rasmussen, the Department of Education, Philosophy and Rhetoric, was labelled a critic's choice of the year in the Danish daily *Politiken*.

11.6. Nanna Borum Gjedde and Pia Markussen, law students, win the Danish Ministry of Justice's prize paper competition 2002 for their paper *Pressen og retspolitikken* (the Media and legal policy). The winners are awarded DKK 25,000 for their paper on how the media's approach to individual cases affects the legislative process.

11.6. The three Departments of Legal Science are closed down and the Faculty of Law becomes a unitary faculty, the powers of the old Faculty of Law's heads of department and department boards being transferred to the Dean and the Faculty Councils. The Faculty is divided into Research Sections I, II and III.

13.6. The dissection of a whale in front of the Zoological Museum attracts a large crowd. See page 40.

17.6. UNESCO invites archaeologist Ingolf Thuesen, head of the Carsten Niebuhr Institute, to participate in a mission to Southern Iraq. The mission is designed to establish the extent of damage to ancient biblical cities standing exposed to looting.

28.6. A European research group, headed by Jens Hjort of the Niels Bohr Institute, has tested and verified that collapsing stars produce a flash of gamma rays. Flashes of gamma rays are among the most powerful phenomena in the Universe.

28.6. Assistant Professor Eva Løbner Lund, PhD at the Institute of Molecular Pathology, is awarded DKK 175,000 from the Danish Cancer Research Foundation for research into the formation of new blood vessels in cancer tissue.

28.6. Associate Professor Hanne Cathrine Bisgaard, PhD (Sc.) at the Department of Medical Biochemistry and Genetics, receives DKK 50,000 from the LEO Pharma Research Foundation to fund her research into the possibility of using stem cells in the treatment of life-threatening diseases.

29.6. Professor Mogens Koktvedgaard, LL.D., dies at age 69. In 1966 he became Professor of Law. He served as Dean of the Study Area of Social Sciences in 1971 and as Pro-Rector of the University of Copenhagen during the period from 1972 to 1981.

1.7. The new University Act takes effect.

1.7. Launch of three new Research Priority Areas: *BioCampus*, *Body and Mind* and *Religion in the 21st century*. See page 28.

5.7. Associate Professor Merete Osler, MD of the Institute of Public Health, is awarded DKK 1 million from the Lundbeck Foundation for her project *Early life-circumstances and health in adulthood*. The project follows up on 12,000 males, born in 1953, who participated in a questionnaire survey on their social and mental lives conducted in 1968.



PHOTO: CATHARINA WENDT

A feast in Antiquity

A group of Greek and Roman women dressed in colourful robes welcomed guests in the new canteen on Amager. Along with one Roman lad, they served a feast for the evening's guests – inspired by a collection of recipes by Marcus Gavius Apicius, food guru from the days of Augustus.

According to the hostess of the evening, Kristina Winther Jacobsen, assistant professor at the Institute for Archaeology and Ethnology, the basic ingredients in the kitchen of classical Greece and Rome were grain, wine and oil. So the tables were set with grapes and olives in both liquid and solid form. There was also bread – and virgin olive oil for dipping. For according to the historian Plinius the Old, the oil makes the dry bread go down easier.

No stinging jellyfish

Fish was the main fare in the kitchens of the day. The fish sauce, *garum*, was so popular that the Romans used it in starters, main courses and afters. On this evening, however, only the starter had this maritime feature.

Great bowls of fresh mussels were carried in. They were served with plenty of bread and followed by a fish soup in a slightly simpler version, because the chef at the Amager canteen could not get a hold of stinging jellyfish – recommended by Apicius – for the fish stock.

The large and tasty fruits of the sea were prepared with parsley and white wine, and the almost clear fish soup was full of dill and fat, little pine nuts.

During the first course, the servants walked the catwalk. Mette Korsholm, expert in clothing from the David Collection, talked about the fashion whims of the day: the more wool, linen and stitches used, the higher the social standing of the person who wore the clothes. But since the wealthy men and women of Classical Greece and Rome never served food for others, there was a bit of fumbling in the outfits when the trays and plates were to be carried to the tables.

Potatoes led astray

Oops, suddenly there were potatoes on the table! Did the archaeologists want us to believe that the potato came to Europe before Columbus crossed the Atlantic on his voyages of discovery?

“No, the Romans did not have potatoes, but if they did, they would probably have prepared honey-glazed potatoes like we're having tonight,” explained Ms Winther Jacobsen as she presented the two main courses, breast of poussin and roast lamb.

These were accompanied by more potatoes with leeks, which was one of the popular vegetables of Antiquity. However, it was not without its inconveni-

Last year, the humanists at the University of Copenhagen invited anyone interested to the Humanities Festival. One of the departments that really went all out was Classical Archaeology.

ences. If you had eaten leeks, you had to kiss with a closed mouth, at least according to the 1st-century Roman poet Martial. Asparagus was also common in the Roman era, as were seeds from cabbage – Antiquity's answer to *Alka-Seltzer*.

Dessert was pears stewed in wine. However, the pear was dressed in sea foam: a light sauce of white wine, cumin and egg whites – bitter and interesting. Finally, there was coffee with filled chocolates, and then the guests left the culinary time machine and the 2003 Humanities Festival. □

The 2003 Humanities Festival took place on the last weekend in April and consisted of a wide variety of events promoted by the various departments. Among other events, there was a brunch accompanied by lectures, panel discussions and exhibits. The 2004 Humanities Festival will be held on 24-25 April. The Festival is held in cooperation with the universities of Roskilde, Lund and Malmö.

For more information visit:
www.humaniorafestival.dk

The watchdogs of language

One of the major events at the Faculty of Humanities was the 16th International Conference on Historical Linguistics, which took place in August.

There was talk of language mixture and language death, but especially of language change when the 370 conference participants met at the University of Copenhagen's new buildings on Amager.

Lene Schøsler, professor at the Department of Romance Languages and Literature and chairperson of the conference organisational committee, calls it a scoop for the University and for linguistic research in Denmark that the 2003 conference was held in Copenhagen.

"There is a lot of competition for hosting the conference, so we were very pleased when it was decided in 1999 that the 2003 conference would be held in Copenhagen."

The most prominent theme of the conference was language change.

"Language has always changed, and historical linguistic research seeks to explain why and how. What's interesting is that the size of the conference now means that a large variety of languages are represented. There were presentations on Asian languages, Aboriginal languages in Australia, language in South Africa, South American Indian languages and a whole section on Japanese," explains Ms Schøsler.

Language is negotiated

One speaker at the conference, Ole Nedergaard Thomsen, senior researcher at the Department of General and Applied Linguistics, gave his explanation for language change: it is simply because it is spoken.

"I see language as both a biological ability and a cultural instrument that adjusts to its surroundings. Language changes while we speak – it is a phenomenon that is constantly being negotiated and is subject to experiments.

And when something catches on, it must be because we like the expression, or because it seems logical to us," says Mr Nedergaard Thomsen.

"At the same time, there is a lot that may seem illogical, but is still maintained: I sing, I sang, I have sung is a conjugation that every child finds odd, but it survives anyway.

"That it way it is also impossible to predict when and how language will change," says Mr Nedergaard Thomsen. □

17.7. The researchers behind the NGRIP ice core drillings at the Greenland ice cap celebrate that their ice core drill finally reaches the Greenland bedrock, 3,084.99 metres below them, after seven years of work. Analyses of the ice cores may provide information to researchers about the climate on Earth up to 120,000 years ago. See page 13.



PHOTO: NIELS BOHR INSTITUTE

17.7. The Honorary Doctorate of Theology from the Johann Wolfgang Goethe University in Frankfurt am Main is conferred on Centre Director at the Søren Kierkegaard Research Centre, Niels Jørgen Cappelørn, M.Th., in recognition of his long-standing internationally acknowledged interdisciplinary study of the thoughts of Søren Kierkegaard.

23.7. "Provided that the Danish Government taxed the payoffs from the enhanced integration in the Øresund region, the Government would stand to make money on abolishing altogether the bridge toll on the Øresund Bridge." Professor of Geography Christian Wichmann Matthiessen, Institute of Geography, to the Danish business daily *Børsen*.

6.8. Professor of Computer Science Eric Jul, Department of Computer Science, is appointed head of the new Danish Center for Grid Computing, funded by the Danish Natural Science Research Council. Over the next three years, the Center, in collaboration with other universities, will conduct research into integrating – in a so-called GRID – the power of a large number of computers into networks for research purposes.

11.-16.8. HRH Princess Alexandra of Denmark opens *The XVth International Conference on Historical Linguistics (ICHL 2003)* at the Faculty of Humanities, attended by 370 participants from 35 countries and five continents. The Conference was arranged by the Department of Romance Languages and Literature. A total of 236 lectures were given divided among 15 thematic sections. See page 21.

15.8. Dennis Flemming Hansen, MSc at the Department of Chemistry, is awarded the *Talent Prize of Danish NMR* for his studies in the electron-transporting protein plastocyanin, which forms part of the photosynthesis of green plants. The award has a value of DKK 5,000.

The Japanese-Danish connection

Yoichi Nagashima has completed the first part of his life's work. It has taken approximately 20 years of detective work to be able to tell the story of the first Japanese in Denmark – and the first Dane in Japan.

In an armchair in Associate Professor Nagashima's office sits a Japanese figurine of a cat on a somewhat frivolous pillow. It looks like something right out of teenage girl's bedroom, and it is.

"My daughter was going to throw it away, but I wouldn't let her. I brought it home for her from Japan once."

Mr Nagashima almost looks injured, but just under the surface bubbles a smile that quickly surfaces. The office of the 57-year-old junior head of department reflects the man himself – relaxed, warm and full of words.

During the past 20 years, Mr Nagashima, who is also associate professor at the Department of Asian Studies, has travelled back to Japan many times – not so much to see his birthplace Tokyo again – but to dig through various archives.

His detective work has been to map connections between Denmark and Japan from both sides – to establish the first Dane in Japan and the first

Japanese in Denmark. In Danish and in Japanese.

His life's work – or the "first half," as he calls it – fills 581 pages and was published in autumn 2003 under the Danish title *De dansk-japanske kulturelle forbindelser 1600-1873* (The Danish-Japanese Connections 1600-1873), and he plans on publishing parts of the work in Japanese and English as well.

Mr Nagashima is a literature historian, so the book represents a process of cultural translation more than actual historical research.

"My theory is that you can never see other cultures objectively. You translate the other culture based on your own culture. It is not unnatural to have prejudices – you just have to be aware that they are there."

Mr Nagashima compares it to a love affair between two people.

"In the beginning, you look for common interests, and you shut your eyes to whatever doesn't fit. But in time, you start to notice certain sides – perhaps what you find irritating. That is why you can't describe the entire person. This has advantages as well as disadvantages. On the one hand, it can be easy to work with common denomi-

nators and to label everything. On the other hand, you don't see the entire picture. The problem is when you start not caring about this imprecision," explains Mr Nagashima.

20 years in the making

The whole book project began about 20 years ago when Mr Nagashima was approached by a Japanese history professor who had received a large sum of money from UNICEF. The money was earmarked for mapping and gathering historical material regarding Japan in other countries – including Denmark.

Mr Nagashima began to search for material for the researchers – to look through microfilm and the Danish National Archives.

"That was when I got a taste for it. When I took an archive out of a box and could see that no one else had ever searched through that archive... Then I was hooked."

Mr Nagashima developed an interest in the people behind the words, especially in the correspondence.

And since the Japanese research community was thrilled with what Mr Nagashima presented, he continued working.

But he was also inspired by other aspects. One of which is what Mr Nagashima calls the daily cultural battle.

"I guess that's what it's like to live for a long time in another country. I dream



PHOTO: HEINE PEDERSEN



PANORAMA OF YOKOHAMA, 1871 – UNIVERSITY OF TOKYO

in Danish, I write best in Danish, but sometimes I still think: am I an old-fashioned Japanese man? It's when I sometimes prioritise or react differently than Danes do. So it's not about identity, but about finding one's roots. That reflection is always in my mind."

Hitching across Europe

Denmark has been Mr Nagashima's home since the psychedelic 60s when a hitchhiking trip across Europe sent Mr Nagashima to Copenhagen.

"Denmark was not my goal. But that was when the Danes were both open and friendly, and there was work for everyone. It was also the heyday for jazz, and I spent a lot of time at the old Montmartre [jazz house, ed.]. I felt comfortable in Copenhagen. But at some point I started to ask myself what I was doing here.

"It was time to do something different with my life.

"At that time, everyone could get into the university, so I took minors in Russian language and literature, and would have studied theatre research. But I had to be able to speak either French or Italian, and after taking supplementary exams in Danish, Latin and German, I said: 'No more languages!'"

Japanese became a major in 1968, and because Mr Nagashima missed Japanese newspapers and books, he

started to visit the library. And he never really left. He earned a lic.phil. (the equivalent of a PhD), married a Danish woman and is father to a son as well as his daughter.

Since then he has held various positions at the University, at first only temporary, but in 1986 he became associate professor. There was a boom in the mid-80s. That was when *Shogun* was on TV, and the students queued up to study Japanese.

Today, there is a fairly steady flow, and Mr Nagashima is popular. In 2002, he became *Teacher of the Year* based on an – almost loving – recommendation from his students.

Mr Nagashima considers himself dual-sided: patient and temperamental. He does everything in style and is more than willing to share his great knowledge.

"I want my students to be even better than me. That's the point." □

18.8. "When it comes to public administration openness, Denmark is lagging behind most of our EU counterparts. In recent years, in particular, this openness has stagnated or worse, whereas the administrations of many other Western countries have made an effort to enhance public accessibility. Denmark has even been overtaken by several Eastern European countries." Professor Tim Knudsen, Department of Political Science, to *DR radio news*.

18.8. Associate Professor Jesus Gomez, Department of Pharmacology, is awarded DKK 2.4 million from the Lundbeck Foundation for his research into the central nervous system.

18-22.8. Institute of Mathematical Sciences hosts a mathematics symposium at the H.C. Ørsted Institute, attended by 150 researchers from 30 countries. The symposium demonstrates that abstract mathematics is alive and well!

25.8. Minister for Science, Technology and Innovation Helge Sander inaugurates the new Tech Transfer Unit – the University of Copenhagen's new unit for technology transfers. The festivities are attended by more than 100 companies, research institutions and public authorities. The Tech Transfer Unit is designed to promote collaboration between researchers at the University of Copenhagen and the industrial sector. See page 46.

28.8. The IT University and the Royal Academy of Fine Arts, School of Architecture, become members of the Øresund University, taking the membership to 14.

29.8. The first class of Master's students of European Studies is launched.



2.9. The University hosts the matriculation celebration for this year's 5,250 new students. See page 32.

3.9. Associate Professor Klaus Gotfredsen at the Institute of Odontology, receives an honorary grant for DKK 50,000 from the Bagger-Sørensen Foundation in appreciation of his research work in dental implants. Associate Professor Jens Højriis Nielsen at the Department of Medical Biochemistry and Genetics, is awarded an honorary grant for DKK 75,000 by the Bagger-Sørensen Foundation for extensive and original research in insulin-producing cells in the pancreas.

Prime Minister in the Ceremonial Hall

More than 500 curious people found their way to the University of Copenhagen's Ceremonial Hall one Tuesday in September. The occasion was quite unusual: the Prime Minister of Denmark was at the lectern.

Anders Fogh Rasmussen was invited to speak at the University on Denmark's Europe policy. It was a topic of immediate interest for several reasons. In part, the Europe debate was being covered extensively by all the news media at the time, and, in part, the University of Copenhagen had just launched an entirely new Master of European Studies programme. And it was this programme that actually occasioned the Prime Minister's visit.

The Danish daily Politiken co-organised the public debate meeting, which attracted a wide array of citizens. Some were students and employees at the University, but at least as many were just regular people interested in politics who wanted to know, among other things, what Mr Fogh Rasmussen's stance was on the EU's expansion to the East, possible Turkish membership for the EU, strengthened collaboration with the USA and Denmark's EU exemptions.

One of the longest rounds of applause of the day was triggered by an Iraqi member of the audience who did not have a question, but only wanted to thank Denmark and the Government for its decision to participate in the war against Saddam Hussein.

Polite disagreement

The Prime Minister's talk was framed by Rector Linda Nielsen, who gave the welcoming speech, and by Editor-in-Chief of Politiken Tøger Seidenfaden, who held the concluding speech. He promised to be very polite since he had the final word and there was no room for a response. However, through his polite demeanour it was clear that the editor disagreed with the main speaker of the day in crucial areas.

The event incidentally coincided with the almost historic power failure that hit Zealand and Southern Sweden. In the Ceremonial Hall the two candelabra were prepared for emergency lighting if necessary. However, it turned out not to be. Almost by political decree, the power returned just as Mr Fogh Rasmussen entered the Hall. □



PHOTO: JOACHIM RODE

Finding the Danish political party member

What are the characteristics of the average political party member? The Danish Democracy and Power Study presented its findings.

In the course of the summer, the findings of the first research into the 180,000 members of the Danish political parties was published.

And the conclusion was clear: the average party member is a middle-aged man with an upper-secondary school education and a strong belief in the party's ideology, although he does not necessarily attend the local meetings.



“Our research shows that the members of political parties are people who want to contribute to the representative government. They feel strongly for their party and want to contribute to turning the development of society in the direction which the party represents. They do this mainly by discussing politics with others,” says Lars Bille, head of the project and associate professor at the Department of Political Science.

Not enough women and young people

However, there are problems with representation of the electorate. Women

and young people are underrepresented – the average member is 55 years old, and especially the Conservative and the Social Democratic Parties have an age-related imbalance.

“Of course it’s a problem if the members do not represent the voters. But you might ask yourself whether that has ever been the case. Even in the good old days when the parties had 600,000 members, there were most likely problems with representation,” explains Mr Bille, who imagines that many at that time were members out of habit or in order to become part of a specific local branch.

“But we don’t really know how the good old days were,” says the associate professor.

The parties have embraced the conclusions of the study.

“Many have re-evaluated the situation – whether they actually are able to come into contact with today’s citizens. It is important for a party to have young members, also because they – along with the middle-aged – are the most active. But it is unrealistic to think that there will be 600,000 members of political parties in Denmark again,” concludes Mr Bille. □

The study is based on 5,200 questionnaire responses out of 7,800.

5.9. The Faculty of Science hosts its traditional annual celebration in the Ceremonial Hall for the 465 graduates and 88 PhDs of the year. The Faculty’s teaching and presentation awards are conferred during the festivities. The principal speech is delivered by Niels-Knud Liebgott, Museum Director at the Royal Collections at Rosenborg Castle.

13.9.-12.10. The Botanic Garden exhibits some 100 African stone sculptures, created by some of Zimbabwe’s foremost female sculptors (and a few male ones). The exhibition is entitled “*In Praise of Women*”. See page 42.

15.-20.9. Some 150 of the world’s leading researchers of string theory (physicists’ attempt to find a theory for everything) convene for a workshop in Copenhagen to discuss the latest developments in research into string theory, gravity and quantum field theories. The workshop is organised by the Nordic Institute for Theoretical Physics (Nordita) and the Niels Bohr Institute.

16.9. Minister for Integration Bertel Haarder is introductory speaker at a lecture entitled: *EU-udvidelsesprocessen – før, under og efter* (The EU enlargement process – before, during and after) as part of a series of seminars under the EU law study programme.

18.9. “If politicians and university leaders want excellence of teaching, they need to reward performance. For example, by way of more time for educational development and more money.” Consultant Sebastian Horst, Centre for Science Education, to *Magisterbladet* (publication by the Danish Association of Masters and PhDs).

20.9. Two-day festivities to celebrate the 100th anniversary of the Law Students’ Library. The Library is a place for law students to lose themselves in their studies.

23.9. Master of European Studies, the University of Copenhagen, and the Danish daily *Politiken* play host to a public debate meeting in the Ceremonial Hall attended by Danish Prime Minister Anders Fogh Rasmussen, who delivers a speech on *Denmark’s proactive European policy*. Despite a massive power failure, the meeting drew a large crowd. See page 24.

26.9. Associate Professor Mette Klingsten is named teacher of the year at the Faculty of Law.

30.9. The “grand old man” of deep sea research Torben Wolff, senior lecturer and PhD at the Zoological Museum, is presented with the *Sir George Deacon Medal* by the Fulbright Chapter, University of North Carolina in the USA. Torben Wolff receives the honour in recognition of his major contribution to our understanding of the sea and its animal life and for building a bridge between oceanography and the communication of science in a historical perspective. See page 12.

Hot debate on a cold evening

It was a bitingly cold Tuesday evening in March. Every seat in Annex B at the Faculty of Law was filled when the Legal Debating Society invited the public to a public debate meeting on the war in Iraq.

Was it just – or entirely unnecessary? That was what the panellists – Helge Adam Møller (Conservative Party), Villy Søvnald (Socialist People's Party), Jørgen Poulsen (general secretary for the Danish Red Cross), Bjørn Møller (senior researcher from the Danish Institute for International Studies) and K. Hillingsøe (lieutenant-general from the

Royal Danish Defence College), with Lotte Mejlhede (foreign affairs editor and current assistant manager of the second largest Danish news programme TV2 News) acting as moderator – were to give their opinions on.

More than 200 people had found their way to the auditorium. The debate took place just before the beginning of

the war in Iraq, so the battle concentrated mainly on whether an attack now was justified and whether it was of any value.

Helge Adam Møller immediately set the tone when he called Saddam Hussein the worst war criminal the world had seen since Hitler. Bjørn Møller, however, did not see how that



PHOTO: WILLI HANSEN



PHOTO: WILLI HANSEN

gave the international community the right to intervene with weapons. And he was also convinced that the presumed connection between Iraq and Al Qaeda was pure invention. Mr Hillingsøe also caused a stir when he called it a historical fact that “war is the midwife of democracy”. In fact, it was an evening with very few quiet pauses and where the audience members raised their hands so fast that the moderator could hardly keep up.

One recurring theme in the discussion was the background for the strong desire of the USA to intervene. Was it world peace or oil the super power was

after? And the participants could not agree on this topic either on that March evening. However, the atmosphere was positive and characterised by fighting spirit, responsiveness and a rare sense of commitment. □

The Iraq War was debated again in April at a well-attended meeting at the Faculty of Law. With Dean Vagn Greve as moderator, such notables as Hjalte Rasmussen, professor in EU law, and Ole Espersen, professor in international law, gave talks on the legality of the war.

Three gold medals

On a March day, a pleased economics student received at a ceremony in Brussels a gold medal in the competition for the *Euroclear Euro Grant*. Rasmus Pilegaard, age 28, received EUR 15,000 (approx. DKK 111,000) for his Master’s thesis on the European monetary market.

But the joy may have been even greater at the Institute of Economics, for the Institute scored the hat trick as well. The Euroclear Grant has been awarded three times, and each time the gold medal has gone to a student at the Institute in Copenhagen. The economics students have grabbed the grant from under the noses of approximately 45 competitors from such universities as Cambridge, Sorbonne and Maastricht. At the same time, the University was awarded EUR 150,000 (approx. DKK 1.1 million), and the money will be used for travel scholarships.

Mr Pilegaard received his gold medal for a thesis in the field of econometrics – a discipline that combines methodologies from economic theory, mathematics and theoretical statistics. Along with his studies, he has worked as an economic statistician at the European Central Bank (ECB) in Frankfurt.

“I am certain that my work at the ECB has been a great advantage, because I’ve had excellent access to both data and experts. But writing a thesis and working at the same time has been very demanding on my family life. Writing took place evenings and on weekends,” says the award winner.

He thinks the Institute is very strong right now, especially in the field of econometrics. □

Previous winners from the Institute of Economics:

1999: Signe Krogstrup

2000: Hans Peter Lorenzen

1.10. Department of Biostatistics celebrates its 25th anniversary. The Department started out as a research council initiative called Statistical Research Unit.

9.10. The Faculty of Health Sciences celebrates Faculty Day. A number of the Faculty’s PhDs are awarded for excellence in internationally recognised research.



10.10. As part of the Copenhagen Night of Culture programme, a number of faculties and departments open their doors to the public and invite Copenhageners to experience science communication in action. See page 39.



15.10. Research Associate Professor Charlotte Fløe Kristjansen, the Niels Bohr Institute, is awarded the *Kirstine Meyer Grant* for DKK 6,000 in recognition of her pioneering work in the development of quantum gravitation models. The Grant is presented every two years by the Danish Association for the Advancement of Natural Sciences.

24.10. “It’s common knowledge that in Denmark offences against property are punished more severely than crimes of personal violence. This tradition dates back to a time when it was a disaster if a man’s cow was stolen.” Professor of Criminal Procedure Eva Smith, the Faculty of Law, to the Danish daily *B.T.*

24.10. Associate Professor Paul E.G. Kristjansen, MD at the Institute of Molecular Pathology, receives DKK 150,000 from *Kaj Bunch-Jensen and Allis Bunch-Jensen’s Grant* in support of scientific work in the diseases cancer and high blood pressure (hypertension). The Grant comprises a research grant of DKK 125,000 and a personal honorary grant of DKK 25,000.

The year’s events are continued on page 33.



PHOTO: HEINE PEDERSEN

Studying the mystery of consciousness

What does it mean to be in love, to enjoy a sunset or to long for summer and sun? Consciousness is one of life's greatest mysteries. Now researchers across academic boundaries are trying to get a better grasp on it.

"It's not until we as humans come to understand consciousness that we can understand who we are as individuals, and how we as humans interconnect with the rest of nature," says Dan Zahavi, philosopher, professor and head of the Danish National Research Foundation's Center for Subjectivity Research at the University of Copenhagen. Professor Zahavi is also a member of the steering committee for the *Body and Mind* Research Priority Area.

Technological advances of the past decades have made it possible to study the correlation between the experiential dimension and the neurophysiological processes in the brain. With the help of scanning, researchers can record images of the brain while it is working, and in that way, discover which parts of the brain are activated when a person thinks, feels or senses.

This is the key to understanding and treating such ailments as dementia, Alzheimer's and schizophrenia. But what does it actually tell us about consciousness itself?

Consciousness as a scientific formula

For many researchers, the solution is to force consciousness into a formula according to scientific principles – with the help of biology, chemistry and physics. But according to Professor Zahavi that won't work.

"We can't understand consciousness by studying just the relationship between the brain and consciousness. We also have to study consciousness on its own terms – we have to include the subjective perspective."

Professor Zahavi does not doubt that the brain plays a role.

"We can see that there is a correlation and that the brain and consciousness have a mutual effect on one another. But regardless of the correlation, there are also key differences. For instance, processes in the brain have a variety of characteristics, such as physical placement, weight and chemical nature, which it doesn't make sense to attribute to experience. To ask how much my experience of a sunset weighs is a confusion of ideas.

Researchers may be able to register that a person is thinking, feeling and sensing, but not *what* the person thinks, feels or senses.

"We can only figure that out by asking questions about the person's own experience. If we are to understand consciousness, then we need to involve the subjective perspective. But this also means that we need to break with the common assumption that science and objectivity necessarily exclude subjectivity," he explains.

The body, the brain and self-knowledge

At the same time, the brain is part of a body that lives in the world. It is therefore also relevant to study the importance of the body for consciousness.

"Initially, it seems obvious that the body plays a role in the communication, senses and actions of the individual, but does the body also play a role when we think in the abstract? And what role does the body play in our interaction with others and in how we experience ourselves? Is it not possible that our self-knowledge is affected by what others think of us, for instance, whether we are ugly or beautiful?" asks Professor Zahavi.

"Consciousness" is a word with many definitions. It is used in very different ways in different disciplines. Understanding consciousness requires that we collaborate across traditional academic boundaries.

That is why philosophy is also represented in the *Body and Mind* Research Priority Area at the University of Copenhagen, where brain researchers, psychologists, psychiatrists, molecular biologists, mathematicians and even philosophers are working together to come one step closer to understanding the mystery of consciousness. □



PHOTO: POLFOTO

The new Muslims

Since the end of the 90s, between 3,000 and 5,000 ethnic Danes have converted to Islam. Why?



PHOTO: HEINE PEDERSEN

With the research project, entitled *Conversion to Islam in Denmark*, researchers Tina G. Jensen (picture), PhD at the Department of Anthropology, and Kate Østergaard, Institute of History of Religion, are conducting a national study of Danish converts.

“We want to study those who convert, why they convert, their perception of Islam and, most of all, what their conversion means for their identity,” says

Ms Jensen.

The research project is part of the University of Copenhagen’s Research Priority Area, *Religion in the 21st Century*, where “Religious conversion and religion in growth” is one of the inter-faculty and inter-disciplinary research areas.

Two groups of converts

Initially there appear to be two groups of Danish converts. One group is comprised of women who marry Muslim men. They are often part of the established Muslim mosque com-

Musa Kronholt has converted to Islam. He has replaced his luke warm relationship to Christianity with an enthusiastic faith in Islam and his parents have accepted their son’s choice.

munities. The other group is young Danes – both men and women, often from intellectual environments – who primarily seek spirituality, a religious community or more continuity between life, society and religion.

From each side, Danish converts seek to develop an understanding of Islam that can make it possible to combine their religious beliefs with a life in Denmark. The first group typically takes as its point of departure the husband’s national perception of Islam, while the second group often focuses on the so-called Euro-Islam, a type of Islam characterised by European trends.

Along with young people from Muslim families, the latter group discusses such topics as how to be Danish and Muslim at the same time, gender equality and the relationship between religion and state.

“The interesting question is whether this community can produce a new culture that both ethnic minority Muslims in Denmark and Danish converts can identify with,” says Ms Jensen.

But the conversion may also be an expression for a rebellion against the modern world. A rebellion against a society where everything is in movement, where values are fluid, and nothing is fixed. By choosing Islam, converts acquire a set of rules that guides daily life from A to Z,” explains the researcher.

At the societal level, the researchers want to study whether these conversions represent a change in society. For instance, does politics play a role for converts – and are they, thus, rebelling against the image of the enemy that some media and politicians seek to create?

In Autumn 2004, Tina G. Jensen and Kate Østergaard will hold an international conference on conversion to Islam. The conference is funded by the *Religion in the 21st Century* Research Priority Area. □

This research project receives funding from the Danish Research Council for the Humanities, and is expected to conclude in mid-2006.

Should we use embryonic cells to cure the sick, and do we want to know what diseases our genes carry? Researchers in biotechnology are dipping their fingers in the Divine toolbox; which is why increased debate and interdisciplinary collaboration is essential for the BioCampus Research Priority Area.

Mankind's inner medicine cabinet

Fertilised human ova can now be used in research into how cell division occurs in the very earliest phase of human life. The findings of such research may one day help to save lives.

But when do such cells become a foetus? Are researchers experimenting on a human being in its earliest form? And how far away is the step towards cloning people?

These questions have vast implications and embody numerous perspectives of the BioCampus Research Priority Area. Bjørn Quistorff, Professor at the Department of Medical Biochemistry and Genetics, heads up the BioCampus Steering Committee.

For Professor Quistorff, interdisciplinary collaboration is essential in preparing society for the rapid advances currently being made in biotechnology.



PHOTO: HEINE PEDERSEN

One example would be stem-cell research, which is one of the four research areas at BioCampus.

Stem cells are the cells that arise after the ovum and sperm cell fuse in the uterus or test tube.

At the start of the cell division all the cells are identical. Then the cells begin to change shape and turn into muscle, brain and hair cells. Researchers hope that

by studying cell division they will ultimately be able to grow new cells, tissue and organs. The isolation of stem cells may eventually also provide information about malformation in foetal development and help to cure diseases such as Parkinson's disease and diabetes. But in principle they could also be used for creating clones of the individual from whom the cell derives.

Monumental problems

The ethical issues involved in stem-cell research are obviously monumental. At what stage do the cells go from being proprietary to the mother to being proprietary to the child? When are we dealing with a cluster of cells and at what stage are those cells a foetus? This discussion is nothing new, but it is becoming more and more topical as the research progresses.

The debate has become more topical than ever after it became legal to use surplus fertilised ova from IVF for stem-cell research in Denmark. And researchers are also permitted to use stem cells from the umbilical cord of newborn infants and from adult muscle tissue. Under the strict control of scientific ethics committees, of course.

“Surely we cannot leave the potentials offered by stem-cell research untouched? Or can we? In principle an ovum could also be used for cloning 64 identical siblings. This is not possible yet, but cloning has been done on a sheep, and in prin-

PHOTO: STONE / ADRIAN NEAL

ciple we know what cloning humans involves. I find that very alarming. Indeed, everyone does. This is why we have to discuss biotechnology before we end up in a field of research that begs the question: 'What can we allow ourselves to do research in?'" says the Professor.

Unknown territory

One can readily imagine all kinds of unfortunate consequences of the research.

"If it becomes possible to obtain a genetic risk profile for the state of someone's health in 20-30 years' time, then the insurance companies would presumably demand that such information be disclosed to them. That would presumably put an end to health and life policies for people with 'bad' genetic profiles.

Finding the patterns for the genes for high intelligence or longevity is also not unrealistic.

"Suddenly one day we'll be turning up the genes for the ageing process or intelligence, and the question is then whether the hint of eugenics in genetics will lead to demands from parents for the right to healthier and more intelligent children. With any luck we will have debated and arrived at a position on these issues before the possibility of actually making such choices becomes a reality.

More substance to the debate

Professor Quistorff hopes that BioCampus will contribute some more substance to the debate on biotechnology. The University is one of the few centres in Danish society that is in a position to provide expertise from several disciplines: We can muster some of the nation's foremost biotechnology researchers and social scientists, humanists, legal experts and theologians to take stock of developments.

"In that way we will hopefully be made to confront our own prejudices. And I have an implicit faith that if you share knowledge and analyses with policy-makers and the population then you stand to achieve a more coherent debate on how to tackle these issues and unlock the enormous potential that lies in biotechnological research," says Professor Quistorff, emphasising that the debate should also take place among biotech researchers themselves. □

Research Priority Areas at the University of Copenhagen

The University of Copenhagen chose, in 2003, to strengthen the academic collaboration across disciplines and faculties with three new Research Priority Areas. More than 100 researchers have begun developing inter-disciplinary research projects and giving students new study options.

In the coming four years, the University's researchers will meet across academic boundaries to create new ideas, new ways of thinking and generally inspire and enrich one another.

The three Research Priority Areas are: *BioCampus*, *Body and Mind* and *Religion in the 21st Century*.

Religion in the 21st Century

The goal of this research priority area is to promote a better understanding of the role religion plays in all aspects of society, from international politics to business as well as cultural and familial contexts.

The research will focus on, among other areas, religion in relation to society and law, conflict and reconciliation and transformation.

The chairman of the steering committee is Hans Raun Iversen, associate professor, Faculty of Theology. For more information visit: www.ku.dk/satsning/religion

Body and mind

This research priority area will shed light on the correlation between the function of the brain and conscious mental life. The research will include various disciplines such as molecular biology, psychiatry, psychology and philosophy, and one of the main goals is to strengthen research in serious neurological and psychiatric disorders such as Alzheimer's and schizophrenia.

The chairman of the steering committee is Martin Lauritzen, professor, Faculty of Health Sciences. For more information visit: www.ku.dk/satsning/Krop_og_Bevidsthed

BioCampus

This research priority area will further develop biotechnology research at the University and will shed light on the ethical, cultural and societal consequences of advances in biotechnology and biomedicine.

The focus of this research priority area will be on such fields as gene therapy, stem-cell research and lifestyle-related illnesses.

The chairman of the steering committee is Bjørn Quistorff, professor, Faculty of Health Sciences. For more information visit: www.ku.dk/satsning/biocampus

Jumping and the holy flame

There are festivities and proud traditions when Linda Nielsen welcomes the new students. The matriculation celebration for 2003 was no exception.

Spirits at Frue Plads were high – a combination of a political rally and summer camp. Perhaps it was the spirit of the freshman introduction trip that still lingered. Especially the Faculty of Science dominated with banners and chants. While Madvig, Bohr and the other stone faces looked down from their pedestals, the new students practiced the difficult discipline of jumping up and down while holding a large tumbler of draught beer.

“Those who don’t jump are law students. Those who don’t jump are law students,” went the chant. Others stood around in small groups looking a bit bewildered and uneasy. They were all waiting to enter the Ceremonial Hall – to hear the Rector’s speech and to shake her hand.

When the doors were opened, they flocked in and sat on the floor. A couple of people with walkie-talkies tried to get them up and standing in the right place.

Finally, everyone was in place. From the gallery high up under the ceiling MI22, the big band from the

Department of Musicology, began a fanfare. The backdoor opened. And in stepped Rector Linda Nielsen, followed by the Vice-rector and Deans, all wearing spiffy black capes with coloured silk edging. Through applause and undulations they crossed the floor, and the Rector took the stage.

Rector Nielsen only managed to say “Dear Students” when she was interrupted by cheers and legs jumping up and down in unison to demonstrate that they were not sitting on a law student. In spite of the solemn surroundings of the Ceremonial Hall, the atmosphere at Frue Plads remained intact. Unfortunately, the Rector had to end the jumping. The old floor in the Ceremonial Hall simply could not stand the pressure.

“You’re going to end up in the cellar,” the Rector warned. But this just gave the new students a chance to show that they can live up to today’s demands for adaptability. Their feet came to a standstill and they began using their hands instead.

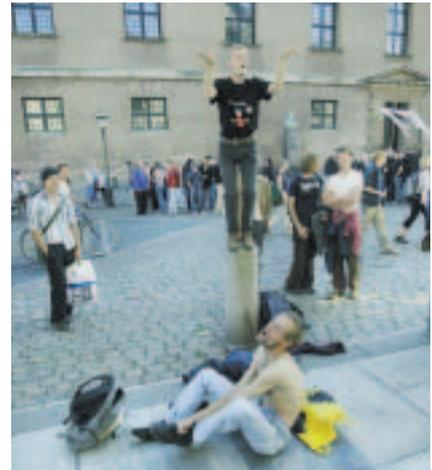


PHOTO: JOACHIM RODE

“Those who don’t clap are law students. Those who don’t clap are law students.”

The cheers and clapping continued throughout the rest of the speech. They cheered when the Rector told about the privileges students enjoyed in the past, such as not having to pay taxes and duties. And when she called the students the life’s blood of the University.

After the Rector’s speech, the Students’ Choral Society sang *Holy Flame*. Then even the benchwarmers stood up, for when Heiberg and Weyse’s old cantata is sung, everyone stands up.

And finally it was time for the handshaking, which Rector Nielsen asked not to be overly hard. This is the handshake that confirms that the new students are now, in her own words, “a part of Universitas – of a fellowship formed in the Middle Ages, which has existed now for 524 years.” Most of those present wanted that confirmation before continuing the festivities in the Courtyard of the Academic Council. □

PHOTO: JOACHIM RODE



Much more than Shakespeare

What exactly can a graduate from the Faculty of Humanities do? A large-scale project is currently underway to map the competencies of “humanists” – for their own benefit and for that of employers.

An MA in English with a thesis on 1,700 pages of Shakespeare – what does that tell a potential employer – and what exactly does it tell the graduate?

“Employers, especially in new employment areas, don’t know much about what graduates in the humanities can. They don’t know that a Shakespeare graduate can interpret all types of literature and other text material at a high level and can communicate very complex material. And the graduates aren’t aware of the fact that they can actually perform project management – that is the management involved in writing their thesis,” explains Sven Herting, head consultant at the Reform Secretariat at the Faculty of Humanities.

He heads up a major competency project that will ultimately help employers, students and foreign universities to understand better what skills humanities graduates from the University of Copenhagen possess. The goal is to describe the specific skills of the graduates.

That is why diplomas from the Faculty of Humanities will, in the not too distant future, look very different – be more specific and user-friendly.

New programmes and new jobs

“In the old days, if you had an MA degree in English with upper-secondary school teaching qualifications you had certain skills and could be employed to

teach. Today, there are many new programmes – such as Theatre Research – and many new job markets, so it is vital that we communicate what skills our graduates possess,” says Mr Herting.

The competency project is also part of the so-called Bologna Process that is to establish comparability between the education programmes of the European countries. The goal is comparability in order to place students at the correct level at foreign universities and in order to ensure that employers in other countries know what they are getting.

“It should be possible in the future for an MA graduate in French from a Danish university to perform a job in Brussels without problems,” explains Mr Herting.

The project will last until autumn 2004, and has attracted the interest of the Confederation of Danish Industries and Danish Commerce and Services, among others. □

Several faculties at the University of Copenhagen are in the process of mapping and describing competencies.

The year’s events continued from page 27.

27.10. Danish film director Per Fly is presented by Ingmar Bergman’s Travel Grant of DKK 50,000 in the Ceremonial Hall. With his movies *The Bench* and *The Inheritance*, Per Fly has established himself as one of the most prominent and successful film directors in Denmark. When Ingmar Bergman was awarded the 1989 Sonning Prize, he donated the prize money back to the University of Copenhagen to serve as the basis for a travel grant in support of Danish theatre and movie makers.

30.10. The Danish Democracy and Power Study submits its final report to the Danish Parliament. Two researchers from the University of Copenhagen, Torben Beck Jørgensen, Department of Political Science, and Signild Vallgård, Institute of Public Health, were on the Steering Committee. *The Danish Democracy and Power Study* launched 74 projects, 27 of which were conducted at the University of Copenhagen. See page 25.

31.10. Birgitte Holst, MMed and PhD at the Department of Pharmacology, wins the prize as *Obesity Researcher of the Year* for her discovery of an important molecule in appetite regulation. The Prize is for DKK 15,000 and is presented by the Danish Society for Adipositas Research. See page 18.

31.10. Using simple means, six young researchers attached to the University of Copenhagen manage to attract active brain researchers in Eastern Denmark. Moreover, researchers from Funen, Jutland, Sweden and France, along with researchers from the pharmaceutical industry, visited Copenhagen to participate in *Neuro Day 2003*.

2.11. “I’m totally convinced that at some point in the future, a time machine will be constructed. It won’t be tomorrow and probably not anytime in the near future, but the vision may be realised sooner than we currently envisage.” Professor Igor Novikov of the Theoretical Astrophysics Center at the Niels Bohr Institute, to the Danish daily *Berlingske Tidende*.

3.11. The Faculty of Science and the Academic Council decide to merge the Faculty’s museums: Botanic Garden, Botanical Museum, Geological Museum and Zoological Museum into one large museum: the Natural History Museum of Denmark. All employees are invited to attend a party in the Ocean Hall of the Zoological Museum to celebrate the “merger”. The merger becomes effective on 1 January 2004.

3.11. The US Deputy Attorney General, Tomas Sansonetti, gives a lecture for law students on environmental crime in the USA.

6.11. Theatre Research celebrates its 50th anniversary at the University of Copenhagen by inviting its students to attend a seminar.



PHOTO: HEINE PEDERSEN

A right-hand in the media

She had a good idea, some unique footage and patience. And suddenly Nette Levermann, a graduate student, was in the press – to her great surprise.

The woman in the sky-blue sweater has a toothless cranium the size of a watermelon in her office. In fact, it should be a right hand, because that was what sent Nette Levermann on the media circuit in October 2003.

“First, the BBC called, and then Die Welt; Nature also picked up the story – wild, huh – and the Discovery Channel. And then there were the Danish newspapers and the Danish Broadcasting Corporation. It caught me off guard that it could attract such attention, because it’s just a sidebar story. In fact, I don’t think it’s really deserved. But perhaps the story is interesting because we can all relate to being stronger in one hand.”

Because of the interest in the story about the large sea mammal, the walrus, apparently being right-handed, the 30-year-old biology student actually discovered that it was fun to be interviewed.

Small part of her thesis

But the story is only a small part of Ms Levermann’s thesis for the National Environmental Research Institute of Denmark and the Greenland Institute of Natural Resources in North-East Greenland. In 2001, she was part of the large CAMP Project in the Young Sund area.

The project maps the effects of climate change on the animal life, and Ms Levermann spent most of her time with binoculars around her neck observing walrus out in the bay – how much time they spent under water eating.

A Swedish underwater photographer, Göran Ehlmé, was also attached to CAMP, and it was his footage of some 50-100 male walrus, which live in the Young Sund area, that Ms Levermann patiently began to analyse – initially out of curiosity.

After a while, a pattern began to

appear: most of the time, the walrus used their right flipper to churn the water just above the seabed to uncover the clams.

Subsequent measurements of skeletons by a colleague showed that walrus actually had longer bones in their right flippers. Their combined knowledge was published by the on-line magazine, BMC Ecology, with Ms Leverman as the head author. And suddenly the common assumption that the use of tools is closely related to the development of larger limbs was called into question.

Lucky timing

It was actually lucky timing that sent the 30-year-old biology student to Greenland in summer 2001. She had never been there before, but applied to the Greenland Institute of Natural Resources, among other places, to do an external thesis because she wanted to work with marine ecology.

“I knew that I wanted to do something with sea mammals, and that I wanted to work in the field – and I liked the idea of doing something that could be used by other people in the project.”

The Greenland Institute of Natural Resources had a position open in the CAMP Project, so Ms Levermann packed her things and set out for the old weather station of the Sirius Patrol.

“It was perfect and quite strange. There I was, 24-hours after leaving Copenhagen, pushing a huge anaesthetised walrus which was to have measurement equipment attached to it.”

After six weeks in the midnight sun, she returned to the Zoological Institute, and has since then worked on completing her thesis. Although she did find the

time to take another summer trip to Greenland.

She does not know what she is going to do after she graduates – or what she will be able to do.

“Lots of people have said that the media attention could make it easier to get financing for projects in the future. But I’ll believe that when I see it,” says Ms Levermann.

She would not mind if the future had more climate research and marine ecology to offer. And the Danish waters

would not be so bad. She is also quite interested in freshwater.

“But no flowers. That’s not me,” concludes the coming biologist with a smile. □

Their arguments held water

A case before the European Court of Justice. Two days of intense confrontations and high-level legal arguments.

It was fiction when four law students participated in the so-called moot court competitions in February – but they did it so convincingly that they won the regional finals in the *European Law Moot Court Competition 2003*.

It was the first time a team from the University of Copenhagen had gone so far, so Peter Hedegaard Madsen, Maria Søndahl Wolff, Gry Høirup and Frederik Hasling had every reason to be proud.

The regional finals took place in Bratislava, Slovakia. Students from 10 different universities competed to win the final and to qualify for the *All European Final*, held later in the year at the real European Court of Justice in Luxembourg.

No actual winner was found for the All Europe Finals, but the law students from Copenhagen participated in the final rounds.

The students in the moot court competition played the roles of defence counsel, prosecution counsel, commission representative and advocate-general based on a fictitious case presented before the European Court of Justice. Winning was based on the quality of the legal arguments in the EU Court.

Of the 80 universities that participated in the competition, 40 qualified for one of the four regional finals.

The moot court competition has been held every year since 1988 and is a prestigious competition for universities from all over Europe. □

6.11. “Electronic church organs do not necessarily herald the demise of church culture ... There’s such a thing as progress.” Professor Axel Bolvig in a comment in the Danish daily *Politiken* to its columnist, Henrik Sten Møller, who is certainly no proponent of electronic church organs.



7.11. The popular Cirkus Naturligvis (Circus Naturally) from the Faculty of Science marks its second anniversary by inviting pupils, sponsors and University staff to attend shows and experiments in the Student House. Since its inception in 2001, Cirkus Naturligvis has been communicating knowledge of chemistry, geology, geography, biology and biochemistry to close to 700 primary and lower-secondary school classes.

7.11. A questionnaire survey conducted by Gitte Gravngaard, graduate student, shows that only 16 per cent of the researchers at the Faculty of Humanities find publicity important. This is paradoxical as the researchers – also according to this survey – say that research does not get enough airtime on radio and television and not enough column space in newspapers.

10.11. The Annual Commemoration festivities are held in the Ceremonial Hall with the attendance of HM Queen Margrethe II of Denmark and HRH Prince Henrik of Denmark. Rector Linda Nielsen and Stine Østergren, law student (United Student Council) speak. Professor Stig Hjarvard of the Department of Film and Media Sciences, delivers the principal speech *Videnskab og overtro i et mediesamfund* (Science and superstition in a media society). *The 2003 teaching award* is conferred on Angel Alzaga, Department of Romance Languages and Literature. Six honorary doctorates are conferred, along with 44 doctorates. Finally, four gold medals and seven silver medals are presented to students for prize papers. The Students’ Choral Society, the University Choir Lille MUKO and the big band of the Department of Musicology, MI22, provide the musical entertainment. At the gala performance in the Royal Theatre, Verdi’s *Opera // Trovatore* is performed. See pages 38 and 44.



PHOTO: HEINE PEDERSEN

Surprised by the weather and the prices

Malgorzata Matysek, from Poland, was pleasantly surprised by the professional way she was received as an international student. It was all so well planned and prepared. But the weather in Denmark...

“December and January are terrible. The weather is one of the two little things that could be better. The other is the Danish prices. I was really surprised at how expensive it is to live here. But I am very happy that I chose to study in Denmark,” says Malgorzata Matysek.

She studies political science at the University of Copenhagen. She has studied for almost five years, and expects to hand in her thesis and to attend her final exam in December 2004.

“I wanted to study in Denmark because I knew that the language level was high. Everyone in this country speaks excellent English. I also knew that the academic level was high, and that was also important. I considered studying in England, but decided that it might be too far to travel,” explains 24-year-old Ms Matysek.

She is concentrating on European relations and intends to apply for jobs in the EU administration after graduating.

She has working experience from Poland, where she worked at the prime minister’s department and helped prepare the Polish EU referendum that was held in summer 2003.

Her thesis is on Danish, Finnish and Swedish collaboration within the EU.

More confidence in the students

Ms Matysek is in Denmark on the Socrates-Erasmus Programme, and in addition to that funding, she also has some of her own. And she has a job.

“I work at a hotel, and that gives me a little extra, so my finances aren’t too tight,” she says.

Ms Matysek lives in a flat in the Nørrebro district of Copenhagen, and she spends a good deal of time with other students – especially the international students.

“We international students meet each other at a lot of events. But the Danish

students don’t go to the same lectures as the international students, so we actually don’t know all that many,” explains Ms Matysek.

And what makes the University of Copenhagen unique?

“It’s the extra freedom and confidence that the teachers show the students,” says Ms Matysek.

In Poland, decisions are made in a more old-fashioned way regarding what syllabus the students have to study and there is not a lot of room to plan according to one’s own interests.

“Another big difference is that in Poland you have to complete your studies at a specific time. For instance, if you are in a five-year programme, then you have to complete your studies within five years, otherwise you have to pay for it. In Denmark, they are more relaxed and give you extra room to specialise,” concludes Ms Matysek. □

A magnet for foreigners

More and more foreign students find it worthwhile to make the long trip to study at the University of Copenhagen. In 2003, around 800 foreigners chose to take their final term at the University of Copenhagen. That was one-third more than the previous year, and almost twice as many as in 2001. Medicine was the most popular major, but theology also attracted many students.

The University of Copenhagen has entered into a number of new collaboration agreements with, among other countries, the USA and Asia, but that alone does not explain the increase in number of exchange students.

“Copenhagen has become very popular as a study town because it has all the facilities of a major city, but it also has a reputation for being safe and not too big,” says John E. Andersen, head of the International Office.

But according to him, the city is not the only attraction for international students. Many travel home from a sojourn at the University of Copenhagen and tell their fellow students that the teaching is top-notch and the teachers are friendly and accessible. Those are the findings of a survey conducted by the University in collaboration with the City of Copenhagen and the other institutions of higher education in Copenhagen.

Unfounded fears

Among Danes, there are also more young people who want to study at the University of Copenhagen. In 2003, 8,500 applicants had the University of Copenhagen as their first priority – that is 200 more than the previous year.

However, having a high number of applicants is not a goal in itself according to Merethe Markvard, deputy head of Study Administration.

“We need to attract some students who have expectations and prerequisites that match what we have to offer. That’s how we can make sure they stay at the University. The best reputation a university can have is to produce qualified graduates and to have students that are happy to go there,” she says.

Medicine is popular

But even though the number of applicants to the University of Copenhagen has increased, it has not meant more new students. This is because it is mostly majors with very limited admittance which have experienced increased interest.

A future in a white coat is especially popular. For medicine, the number of applicants has grown from approximately 1,250 to 1,450, and it has consequently become more difficult to acquire one of the coveted spots. In 2002, a grade-point-average of 9.3 on the Danish 13 scale was enough. In 2003, acceptance required at least a 9.6.

The Faculty of Theology also experienced an increased interest in 2003. The Faculty accepted 120 first-priority applicants – 15 more than in 2002.

Dean Steffen Kjeldgaard-Pedersen is not certain why the Faculty has become so popular, but he emphasises that the academic advisors have worked hard to get the word out about theology at the upper-secondary schools and at orientation meetings. □



PHOTO: LINDA HANSEN

10.11. Professor Morten Lange, former rector of the University of Copenhagen, dies at age 83. In 1959, Morten Lange was one of the founding fathers of the Danish Socialist Party. When the Party ran for parliament in its first general election in 1960, Morten Lange was one of the 11 MPs elected from the Party. In 1976 Morten Lange withdrew from parliament to become Rector of the University of Copenhagen. Professor Lange held this position until 1979 when he lost the election to his successor, Erik Skinhøj. Morten Lange, who was also professor at the Botanical Institute, was popularly known as the “fungus professor”.

12.11. Professor Kirsten Ketscher, LL.D., is nominated Northern Scholar 2003 at the University of Edinburgh in recognition of “Outstanding Ability”.

12.-13.11. The Department of Nordic Philology hosts a conference themed *Researchers and the media*, attended by researchers from the University, prominent media professionals from a broad spectrum of the Danish media world, and a large number of university communications staff.

14.11. The Minister for Science, Technology and Innovation gives the go-ahead for a new master programme in foreign language teaching at the Department of English. The programme will be planned and offered by the Department of English in partnership with Copenhagen Business School and the Danish University of Education.

18.11. As a first, the University writes to just over 50,000 graduates, encouraging them to look into the possibilities of further and continuing education at the University.

19.11. “The Minister for Ecclesiastical Affairs, Tove Fergo of the ruling Liberal Party, practices state theology by insisting on constantly telling us what is the right theology and what is the right ecclesiastical view ... The basic relations between the church and state should be reconsidered.” Hans Raun Iversen, associate professor of practical theology at the Faculty of Law to the Danish newspaper *Kristeligt Dagblad*.

19.11. Associate Professor Finn Prætorius at the Institute of Odontology is awarded the *Zendium Prize* of DKK 40,000 in recognition of his significant achievements in oral pathology.

An owl for an angel

He started with teaching children in South America to read. Now he is making students of Spanish smarter. The *Teacher of the Year* for 2003 is Angel Alzaga.

The owl peers down from a shelf in Angel Alzaga's office at the Department of Romance Languages. The porcelain owl is the tangible proof that the assistant professor can call himself the University of Copenhagen's *Teacher of the Year 2003*. He was nominated by students who recommended him with words such as committed and compassionate, and who emphasised his great knowledge and excellent theoretical ballast.

He does not feel that the award has been given especially to him. It is more a recognition of the teaching at the entire Spanish Department, and the programme that means that new students are paired up with a specific teacher in the first year.

"I don't think there is anything special about me that I don't also see in my colleagues. But because I teach first-year students and have been responsible for building up the programme, I am a face that the new students see a lot. I think that's part of the reason why I received the award," says the modest 58-year-old, Spanish-born assistant professor.

Children and students

Angel Alzaga thinks that an important ingredient in university teaching is that the teacher is able to put himself in the shoes of his students and see the world through their eyes.

"They have some expectations and prerequisites, which need to be realised and recognised when you begin to teach. They expect a certain level. You have to give them teaching that brings out their hunger for something special," he explains.

Mr Alzaga has taught at many different levels. He has degrees in philosophy and sociology from universities in Italy and Belgium, and came to Denmark in the 70s. But even as a 19-year-old newly trained primary school teacher, he longed to travel and went to South America where he worked for six years at different schools.

And although it does not help to scold the university students for not doing their homework, there are still some elements from the primary school that it makes sense to transfer to the university.

"The long course of study our students follow throughout their lives is traditionally divided into three parts. At the primary school level you take care of the child as a person. Then comes the upper-secondary school level where formation is the focus. Finally you move on to the university where it is all about knowledge. This division may be good enough, but even at the upper-secondary and university levels it is important to take care of the students as people," he says.

A priest with a Beatles record

Angel Alzaga comes, in his own words, from a completely different world. For instance, as a child and teenager, he went to a school where priests and monks were responsible for teaching, among other things, Greek, Latin and philosophy.

"They were obviously influenced by their religious background, but not so much that it meant anything, and they were open to the new world. I can still remember how my literature teacher came to school with one of the first Beatles records," recalls Mr Alzaga.

How does this background affect Mr Alzaga's teaching today?

"Teaching is the middle of the road between art and technique, and so it's difficult to know whether it is a kind of inspiration or something you build up to," is the assessment of the *Teacher of the Year 2003*. □



PHOTO: JOACHIM RODE

Night of Culture with fire and ice



PHOTO: HEINE PEDERSEN

There was a wide variety of treats when the University of Copenhagen's many sections and museums opened their doors for the Night of Culture.

At the Niels Bohr Institute, guests were given 3-D glasses in the cinema so they could see the robotic vehicle, *Spirit*, in action. In early 2004, it began the search, along with its partner *Opportunity*, for water on Mars.

There were also samples of frozen marshmallows for children and adults, and in the courtyard a nitrogen bomb was lit.

And although a deep freezer is not the most attractive place to spend time, both children and adults dropped by the basement for a closer look at a 1,000-year-old ice-core drilled out of the Greenland ice cap.

Onboard the Galathea

At the Rockefeller Complex, you could get a closer look at a bunch of rockets, while at the Zoological Museum the retired doctor, Carsten Feddersen, told

stories from his days on the research ship, *Galathea*. That was the world-famous ship, which sailed around the world in the 1950s studying the deep sea.

Many other places also opened their doors on that October evening: the Geological Museum offered songs, a volcano film and lectures on, among other topics, dinosaurs. The Faculty of Law welcomed guests in the main building at Frue Plads, while staff from the Centre for the Study of the Cultural Heritage of Medieval Rituals at the Faculty of Theology told visitors about the close-knit relationship between music and Christianity. □

24.11. "In 20th century theology, science and theology were widely linked to two different aspects of life and a sharp distinction was made between knowledge and religious belief. That way theology managed to safeguard against a conflict between the two aspects – and thus against losing out to the terrifying superior force." Associate Professor Jakob Wolf, Th.D. at the Faculty of Theology, in a feature article in the daily *Kristeligt Dagblad*.

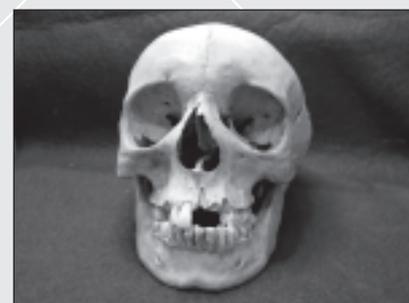


PHOTO: INSTITUTE OF FORENSIC MEDICINE

24.11. Using DNA technology, researchers from the Institute of Forensic Medicine reveal that the woman buried next to Svend Estridsen in Roskilde Cathedral (burial place of Danish kings and queens) is not his mother, Estrid, but in all probability his daughter-in-law, who is also his mother's namesake. The researchers have also documented that the family originates from the Middle East. The photo shows the skull of Svend Estridsen.

25.11. "It's wrong to assume that Danishness and Danish values are unchanging. If we realise that the cultural battle will, in effect, be a showdown between various sets of values that may turn the country in a new direction ... The only way for us to move the debate forward is by realising that openness towards the rest of Europe is our only chance to develop a real, living democracy able to rise above the fixation on national values." Associate Professor Peter Duelund, Department of Arts and Cultural Studies, to the Danish daily *Morgenavisen Jyllands-Posten*.



PHOTO: DEPARTMENT OF CHEMISTRY

26.11. Merete Bilde, a chemist and associate research professor at the Department of Chemistry, receives the 2003 *Environmental Award* of DKK 250,000, presented by the Aase and Ejnar Danielsen Foundation, in recognition of her research in the effects on the global climate of atmospheric aerosols – tiny airborne particles of chemical compounds.

A whale came to town



PHOTO: GEERT BROVAD

It was a day of long knives: the Zoological Museum skeletonised one of Denmark's rare mammals, giving Copenhageners a somewhat unusual experience at the same time. Hundreds of people followed the event from the front row, while the rest of Denmark had whale served with their evening tea on Denmark's second largest television channel, TV2.

It was standing room only in front of the Zoological Museum that Friday in June. Children of all ages were crowded together on the lawn in front of the Museum. And several of those who really stood up close almost regretted it, because it was a both bloody and smelly show that was performed on the grass in front of them.

The story began several days earlier: a young whale, a *Balaenoptera acutorostrata* (lesser rorqual), had strayed into a fishing net near Skagen, Northern Jutland, and drowned. The fisherman who found it informed the Zoological Museum. Normally, the Museum's experts would travel up north to skeletonise it on sight. But this time, they chose to do it in the middle of Copenhagen, especially to give school children and others a rare glimpse into the world of science.



PHOTO: GEERT BROVAD

There were several reasons to dissect the whale. First and foremost, the skeleton was to become part of the Zoological Museum's whale collection. At the same time, samples were to be taken so the National Environmental Research Institute of Denmark could test for pollution.

The whale on the lawn was more than five metres long and weighed about one ton. The trip from Skagen to Copenhagen took place on a truck, and undoubtedly quite a few people got an eyeful as the whale rolled into Copenhagen on its way to the lawn at Universitetsparken. It spent the night there until the skeletonising could begin.

And although the whale was relatively fresh, a powerful stench quickly spread throughout the Museum's front garden when the knives began their work. A dead whale's entrails smell really terrible and many of the spectators both gasped and pinched their noses.

This did not scare off the TV and newspaper photographers, however.

They took excellent close-ups, which were quickly sent around the country, waking even more interest in the Museum and its new arrival. In an extraordinary gesture, the Zoological Museum opened the doors to its whale collection, which is otherwise reserved for researchers.

"The whale is an example of the greatest privilege of the Zoological Museum: that we can communicate science and provide gripping entertainment at the same time," says Hanne Strager, the Museum's exhibition manager.

"Not many of our guests think of the Museum as a scientific institution, but more as a place of entertainment. But it is research that creates the conditions for our exhibitions. We want to create an understanding for this connection, and in that sense the whale was a really good example," she says.

The skeleton of the *Balaenoptera acutorostrata* is currently on display in the vestibule of the Museum. □

Facts about the *Balaenoptera acutorostrata* (lesser rorqual)

The *Balaenoptera acutorostrata* is a relatively rare guest in the inner waters of Denmark. It is common in cold waters in both the northern and southern hemispheres, but does not normally come so close to the coasts.

The *Balaenoptera acutorostrata* is the smallest of the baleen whales. It is a slender whale with a pointy head. The adult *Balaenoptera acutorostrata* – or rorqual as it is also called – can be up to 10 metres long.

It is very rare for whales of this kind to get caught in fishing nets. In the last 100 years, it has only happened 4-5 times in Danish waters. It is therefore also quite exceptional for two whales to get caught in nets, as happened in 2003. Luckily the first escaped: it survived its stopover in the net and was able to be released again.

29.11. "Why do environmental organisations believe that all changes are for the worst? They may actually be for the better. The notion that everything must be static is crazy. The entire environmental debate in this field is totally off track." Jørgen Peder Steffensen, ice core researcher at the Niels Bohr Institute, to the Danish daily *Morgenavisen Jyllands-Posten*.

1.12. "It's about time the Danish National Church sends out a positive and unambiguous message on relations with gays and lesbians and the opportunity for this marginalised group to receive the blessing of the Church." Professor Theodor Jørgensen, the Faculty of Law, in a feature article in the Danish daily *Kristeligt Dagblad*.

1.12. Ditlev Tamm celebrates his 25th anniversary as a professor of the Faculty of Law with a party at the Theatre Museum. "My ideal is for the University to be a place for educating not judges or lawyers, but people who, by virtue of the knowledge they obtain at the University, develop a personal attitude to life, along with extensive academic knowledge," says Professor Tamm.

1.12. Institute of Geography is appointed host and co-ordinator of ReNED – Research Network for Environment and Development, funded by a DKK 3.7 million grant from the Royal Danish Ministry of Foreign Affairs over a three-year period.

4.12. Professor Jacob Rosenberg, MD at the Institute of Surgery and Anaesthesiology, receives the *Lundbeck Foundation's DKK 150,000 Award for Young Researchers 2003* in recognition of his research, which has contributed to the development of telescope operations.

17.12. A 30-minute television programme on the University of Copenhagen, produced by the Chinese state television CCTV, is shown to the Academic Council. The programme was recorded in 2002 and it is estimated that more than 300 million Chinese viewers have seen the programme.

22.12. The German *Humboldt Research Award* for EUR 50,000 is conferred on Martin Lauritzen, Department of Medical Physiology, in recognition of his brain research findings.

27.-28.12. Geological Museum proudly presents its newly acquired, unique Mars meteorite. The exceptionally large meteorite is the size of a fist and weighs just over 400 grammes. The "new" meteorite, discovered in summer 2000 in the desert area Sayh al Uhaymir in Oman, is one of just 29 known Mars meteorites and it is estimated to be some 1,300 million years old. See page 11.



PHOTO: HEINE PEDERSEN

A tribute to woman

In autumn, the Botanic Garden received a visit from 100 lovely ladies from Zimbabwe – and the bride, the mother and the green lady stayed for almost a month.

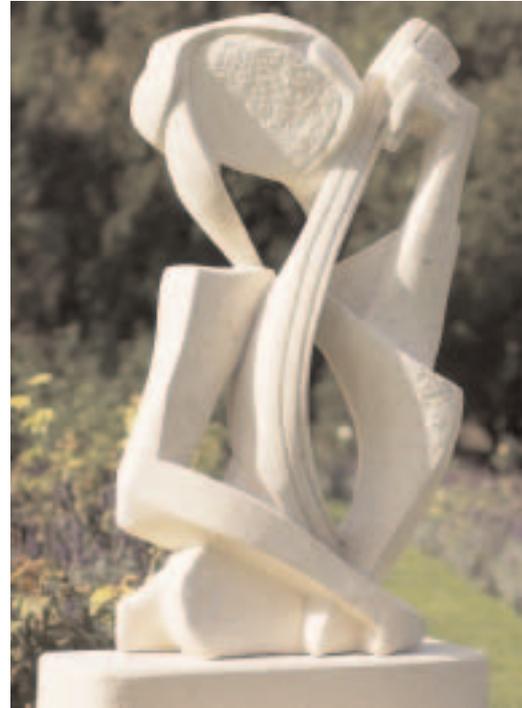
The Botanic Garden had agreed to provide a green background for a collection of African stone sculptures which together appeared as a tribute to woman and to art's victory over the hard life women live in Zimbabwe today. The sculptures, weighing 6-8 tons in all, were carved by some of the most talented female sculptors and a couple of males from that African country.

Jette Dahl Møller, associate professor at the Botanic Garden, was behind the exhibition along with ArtAfrica.

“I would have cheated people out of seeing something beautiful if I had said no to the exhibition. I have always loved stone, and I am fascinated by the alternation between rough and polished of these sculptures.”

The 44-year-old Agnes Nyanhongo,

PHOTO: HEINE PEDERSEN



who toured with the sculptures, is considered Zimbabwe's leading sculptor.

"Our sculptures show us as we are and live. In other countries there are also artists who carve stone sculptures, but I am not sure that the sculptures represent the countries in the same way that ours represent Zimbabwe," explains Ms Nyanhongo.

Zimbabwe, which means "house of stone" when translated literally, is known for its wealth of stone, its stoneworking traditions and its modern sculptures.

The botanical gardens in Uppsala and Oxford also exhibited the African women. □

PHOTO: HEINE PEDERSEN



PHOTO: HEINE PEDERSEN

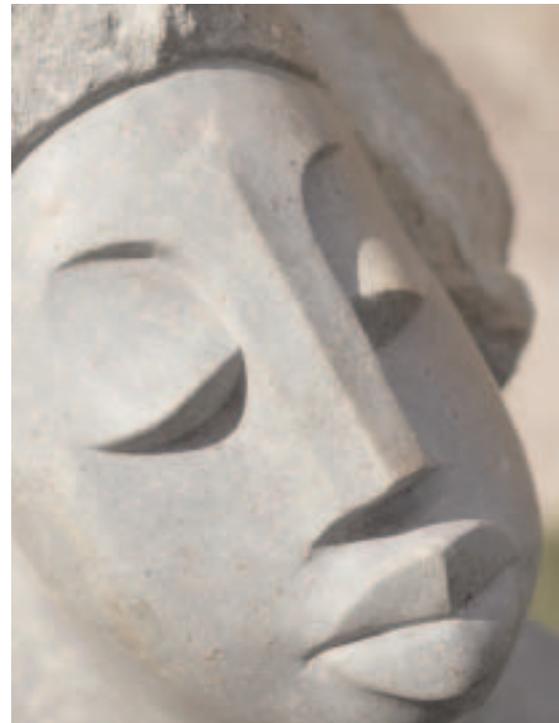


PHOTO: HEINE PEDERSEN

The speakers at the University of Copenhagen's Annual Commemoration all dealt with the theme of "truth" from various angles. HM Queen Margrethe II and HRH Prince Henrik of Denmark were present – and well entertained.

Annual Commemoration 2003: truth, fantasy and superstition

"Finally it is here!"

Thus began Rector Linda Nielsen her speech at the Annual Commemoration in November, and thoughts of the National Budget, the University Act or the date of the University's transfer to self-governing status may have entered the minds of the spectators.

But it was actually the fifth volume of the Harry Potter series the Rector was referring to. The book was the starting point for a speech about freedom, values and the University's search for truth.

And as a direct comment on the great upheaval in the university community, Rector Nielsen made the words of Professor Umbridge her own:

"Without progress there will be stagnation and decay. There again, progress for progress's sake must be discouraged. A balance, then, must be strived for between old and new, between permanence and change, between tradition and innovation, because some changes will be for the better, while others will come, in the fullness of time, to be recognised as errors in judgement. Let us move forward, then, into a new era of

openness, effectiveness and accountability, intent on preserving what ought to be preserved, perfecting what needs to be perfected, and pruning wherever we find practices that ought not to be preserved."

Rector Nielsen spoke of the search for truth and the fundamental values in the university community.

"So it is clear why many other values belong here – 'openness' for instance. Research should be as open as possible,

not because 'openness' is one of today's favourite buzz words, but because a free and open discussion of research findings is the best way to guarantee against them becoming subject to interests other than the most crucial one."

An appeal from the students

This year's speech by the United Student Council was given by Stine Østergren. She called on the University Management to remember that they too



PHOTO: JOACHIM RODE



PHOTO: JOACHIM RODE

had fought to maintain democracy at the University. But now – in the hour of truth – there are problems with living up to those intentions.

“Over the last four months, many elected leaders at the University have been busy showing the outside world that they can be effective. In the process, openness and involvement in the decision-making process has all too often suffered,” said Ms Østergren, who concluded her speech with an appeal to the coming University Board:

“Please don’t rush strategic decisions. The most important role of the Board is to create the framework for democracy and involvement. Democracy at the University is the glue that holds the University together. It is what makes the University work as a university.”

The media like a new church

Stig Hjarvard, professor at the Department of Film and Media Science, gave the principal speech. It focused especially on the relationship between

PHOTO: JOACHIM RODE



belief, superstition and knowledge. And also on the media’s contribution to blurring the boundaries.

“The increase in media competition and the hard-pressed advertising market has made it easy for the media to maintain a sociable attitude towards the fundamental struggle between science and superstition. The guests may have all kinds of opinions, but everyone should have a good time and no one should be

offended. That is why TV programmes on clairvoyance are being aired alongside informative nature programmes.

“On the surface this may seem terribly democratic, for everyone has a right to be heard and, in fact, to believe what they want. But the price we pay for everyone to feel comfortable with the media’s mixed bag of faith, superstition and knowledge appears in the form of a lack of respect for professionalism and objectivity.” □

PHOTO: JOACHIM RODE



Flourishing partnership with the business community



PHOTO: HEINE PEDERSEN

The University of Copenhagen is committed to bridging the gap between the research and business communities. To that end, the University set up a special unit in 2003.

The Tech Transfer Unit is the name of the University of Copenhagen's new unit for technology transfers. This Unit, established with funding from the Ministry of Science, Technology and Innovation, is designed to bridge the gap between the research and business communities.

Professionalism, business-mindedness and service are key to the operation of the Tech Trans Unit. It should not be a hassle, or indeed a science in itself, for businesses to establish whether the research conducted at the University of

Copenhagen may be applied by them. The Tech Trans Unit is designed to facilitate the access of companies to seek research knowledge – and of researchers to seek interested companies – so as to ensure that research findings can be developed and put into practical use. □

Please log on to www.tt.ku.dk for further information.



PHOTO: HEINE PEDERSEN



PHOTO: HEINE PEDERSEN

Cardiac assistance

The Department of Medical Physiology and the biotech company Zealand Pharma joined forces several years ago to develop a brand new type of drug, which is now ready to be tested. The aim of the drug, so far known as *ZP123*, is to prevent patients with a blood clot in the heart from going into life-threatening cardiac arrest. The US pharmaceutical giant Wyeth, employing more than 52,000 staff worldwide, is involved in the further development of the heart drug.

ZP123 is the world's first pharmaceutical candidate to target cell communication channels – the so-called 'gap junctions' – i.e. pores in the cell surface membrane used for intercellular communication. These communication channels are clogged in patients with a blood clot in the heart.

"Ours is the world's first drug designed to open these 'gap junctions' again and make them functional if they have somehow been damaged. We hope to start testing the drug on humans next summer – and Wyeth will play a vital role in this process. The drug is to be tested on as many as 15,000 to 16,000 patients. This obviously requires a huge capacity," says Professor Jørgen Søberg Petersen, Department of Pharmacology, who is also head of research at Zealand Pharma.

Scientific initiative

The partnerships between the business community and scientific researchers are thriving at the University of Copenhagen. That is the conclusion of a report published in June 2003. The conclusion of the report is based on a questionnaire survey conducted among the researchers of the Faculty of Science. The survey shows that close to 40 per cent of the Faculty's researchers are engaged in partnerships with private companies, representing an increase of almost 100% over a five-year period. This development is welcomed by the Confederation of Danish Industries.

"The extensive partnerships between the Faculty of Science and Danish companies are most positive. This corroborates the findings of our previous surveys, demonstrating growing interest on the part of our membership companies in entering into partnerships with the University," says Charlotte Rønhof, senior consultant at the Confederation of Danish Industries.

The report establishes that partnerships between the University and the business community span a wide spectrum from financial services companies to pharmaceutical companies. However, most of the agreements are concluded in the areas of biotechnology, apparatus development and IT. Of a total of 145 business partners, 45 are foreign companies.

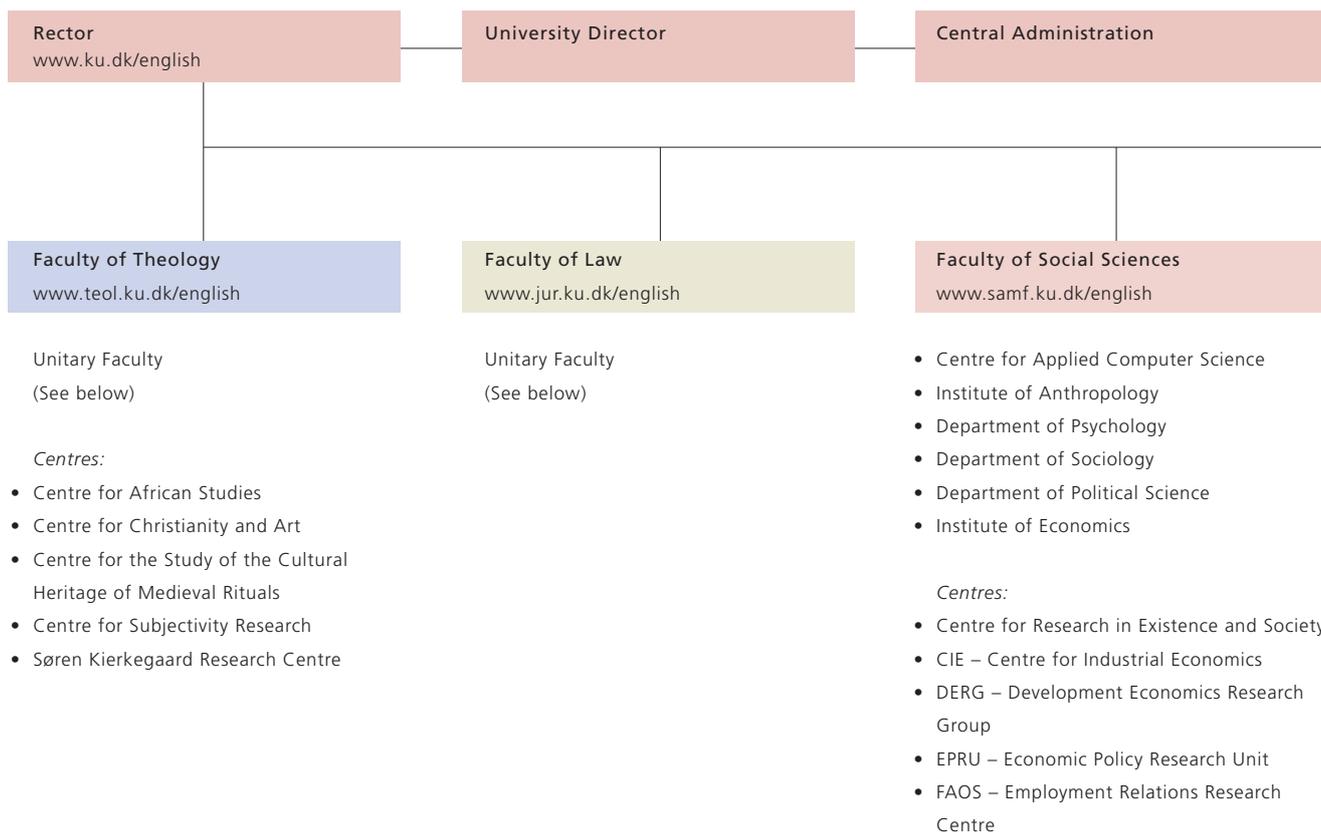
The encouraging result is the merit of the Faculty of Science, among other factors, which set up a special corporate partnership section a few years ago. When the overhaul of the science study programmes takes effect in autumn 2004, students may receive credit transfers for traineeships as part of their studies.

100 per cent nanocompany

Denmark now has its first company focusing exclusively on the nanotechnology market. The Nano-Science Center plays host to the new company Atomistix, which is engaged in development and marketing of software for nanotechnology purposes. Due to the company's location, at the very heart of the science environment, it is only a short path from research to revenue. CAT Science Park has invested DKK 3.5 million in the new company.

NASA (the US National Aeronautics and Space Administration) has indicated its interest in acquiring the Atomistix software package and the company is currently engaged in negotiations with several of the world's leading electronics giants on sales of software for the development of nanotechnology products.

This interest shows that Atomistix is in the process of establishing a solid footing in the rapidly expanding global market for nanotechnology products.



Department mergers

In 2003 the Academic Council decided to merge the following departments, effective from 1 January 2004. In practice, several of the new departments will not be operational in their new form (with newly elected heads of department and new department names, etc.) until sometime in 2004:

Faculty of Humanities

- Department of General and Applied Linguistics + Department of Nordic Philology
- Department of Archaeology and Ethnology + Department of Greek and Latin + Department of History
- Department of Asian Studies + The Carsten Niebuhr Institute of Near Eastern Studies + Department of Eskimology + Department of History of Religions + Department of East European Studies
- Department of Art History and Theatre Research + Department of Comparative Literature – to Department of Arts and Cultural Studies
- The Arnamagnæan Institute + Department of Danish Dialectology + Department of Name Research – to Department of Scandinavian Research
- Department of Film and Media Studies + Department of Education, Philosophy and Rhetoric
- Department of English + Department of Romance Languages and Literature + Department of German and Dutch

Faculty of Science

- Botanical Institute + Zoological Institute – to Institute of Biology
- August Krogh Institute and Institute of Molecular Biology (effective from 1 January 2005)
- Botanic Garden, Botanical Museum, Geological Museum and Zoological Museum – under the joint name of the Natural History Museum of Denmark

Department transfers and name changes

On 1 January 2004, the Department of Psychology was transferred from the Faculty of Humanities to the Faculty of Social Sciences. In 2003, the Museum of Medical History changed its name to Medical Museion (Department of Medical History).

Department closures

In 2003, the Faculties of Theology and Law were transformed into Unitary Faculties when their departments were closed down to be replaced by sections directly under the Faculties.

Faculty of Health Sciences

www.sund.ku.dk/english

Theoretical Departments:

- Department of Pharmacology
- Institute of Public Health
- Department of Medical Anatomy
- Department of Medical Biochemistry and Genetics
- Department of Medical Physiology
- Institute of Medical Microbiology and Immunology
- Institute of Molecular Pathology
- Institute of Odontology
- Institute of Forensic Medicine
- Institute of Eye Pathology

Clinical Departments:

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

Other Units:

- Department of Experimental Medicine
- Central Research Unit of General Practice
- Copenhagen Muscle Research Centre
- Medical Museion

Outside the Faculties

- School of Oral Health Care

Faculty of Humanities

www.hum.ku.dk/english

- Department of General and Applied Linguistics
- Department of Archaeology and Ethnology
- The Arnmagnaean Institute
- The Arnmagnaean Commission
- Department of Asian Studies
- The Carsten Niebuhr Institute of Near Eastern Studies
- Department of Danish Dialectology
- Department of English
- Department of Eskimology
- Department of Film and Media Studies
- Department of Education, Philosophy and Rhetoric
- Department of Greek and Latin
- Department of History
- Department of Art History and Theatre Research
- Department of Comparative Literature
- Department of Musicology
- Department of Name Research
- Department of Nordic Philology
- Department of History of Religions
- Department of Romance Languages and Literature
- Department of German and Dutch
- Department of East European Studies

Centres:

- Centre for Language Technology
- Forum for Renaissance Studies
- The Copenhagen Polis Centre

Faculty of Science

www.nat.ku.dk/english

- Arctic Station
- August Krogh Institute
- Botanic Garden
- Botanical Institute
- Botanical Museum and Library
- Department of Computer Science
- Institute of Geography
- Geological Institute
- Geological Museum
- Institute of Exercise and Sport Sciences
- Department of Chemistry
- Institute of Mathematical Sciences
- Institute of Molecular Biology
- Niels Bohr Institute for Astronomy, Physics and Geophysics
- Zoological Institute
- Zoological Museum
- The Øresund Aquarium

Centres:

- Bioinformatics Centre
- Centre for Crystallographic Studies
- Centre for Science Education
- Centre for Philosophy of Nature and Science Studies (CPNSS)
- Center for Planetary Science
- COGCI – Copenhagen Global Change Initiative
- Nano-Science Center
- NIK – Natural Sciences ICT Competence Center

Key figures

	1999	2000	2001	2002	2003
Part objective					
No. of students	33,757	34,165	33,801	32,595	32,314
No. of 60 ECTS credits*	15,573.1	16,394.8	16,448.9	16,494.3	16,412.7
Student intake as of 1 October	5,342	5,126	4,802	4,857	4,843
No. of first priority applicants	9,565	9,391	8,235	8,449	8,357
No. of tuition-paying students – 60 ECTS credits (Open University)	1,109	1,131	1,142	1,153	1,151
Average age of accepted applicants	23.5	23.5	23.7	23.9	23.8
Median age of accepted applicants	22	22	22	22	22
No. of Bachelors	2,324	2,611	2,447	2,708	2,620
Average age, Bachelors	27.1	27.1	27.0	27.0	26.9
Average completion time, Bachelors	4.3	4.3	4.2	4.2	4.1
No. of Masters	2,034	2,183	2,447	2,624	2,529
Average age, Masters	30.1	30.3	30.2	30.2	30.5
Average completion time, Masters	7.7	7.7	7.7	7.5	7.5
No. of tuition-paying students – 60 ECTS credits	1,130.7	1,141.8	1,153.2	1,151.3	1,178.0
Masters – full course of study (Master, Diploma)	76	111	93	120	101
Total no. of research education staff – full-time equivalents	1,041.7	1,125.1	1,050.5	1,031.9	1,016.2
Total no. of research education students as of 1 October	1,077	1,194	1,217	1,173	1,154
No. of research education students as of 1 October, men	577	636	630	596	574
No. of research education students as of 1 October, women	500	558	587	577	580
No. of PhD theses, 2003	288	285	264	255	245
Students triggering internationalisation grants	1,363	1,384	1,401	1,462	1,559
Incoming	816	830	684	730	756
Outgoing	547	554	717	732	803
No. of Doctorates	44	44	38	32	52
No. of research publications according to Annual Report	4,853	4,847	5,029	5,701	5,238
No. of research education students, old scheme, as of 1 October, total	23	9	3	0	0
No. of research education students, old scheme, as of 1 October, men	9	5	3	0	0
No. of research education students, old scheme, as of 1 October, women	14	4	0	0	0
Median completion time, Bachelors	4	4	4	4	4
Median completion time, Masters	7	7	7	7	7
Median age, Bachelors	25	26	26	26	26
Median age, Masters	29	29	29	29	29

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

Exchange rates in 2003

1 DKK equals approximately:

EUR 0.14

USD 0.17

Financial performance in 2003

The University's overall activities show a reduction in expenditure of DKK 50.9 million, see the statement of revenue and expenditure. Ordinary activities account for a DKK 43.6 million reduction in expenditure, due, in particular, to the targeted efforts of some faculties to make up for the additional expenditure of previous years.

A number of activities (and their related expenses) have been deferred, providing a boost to provisions. The increase in provisions is also the result of a deliberate attempt at building up a reserve to cushion the University from the effects of future fluctuations in revenue and expenditure – in particular fluctuations caused by shifts in the total number of ECTS credits. The University is also faced with the huge task of changing its management structure, overhauling the student guidance system, altering the curriculum structure, etc. Some of the provisions will be earmarked for these tasks.

The University considers the financial results to be satisfactory, especially considering the fact that its six faculties will all start 2004 "in the black", having adjusted their activity levels to match the funds available.

A total of DKK 113.6 million will be carried forward to 2004. Relative to the University's aggregate ordinary grants and appropriations, provisions account for 4.3 per cent (see Table 1).

External research activities continue to rise, but at a declining rate. Commercial activities and other activities funded by grants play a limited role in the University's finances. While these activities fluctuate only slightly in absolute figures, forensic services continue to surge.

Funding is booked as revenue in accounts for grant-funded research activities and other grant-funded activities *pari passu* with the payment of expenditure on the projects in question. Grants received are paid into a cash account which does not form part of the statement of revenue in the statement of revenue and expenditure. The cash holdings are written down as the expenditure materialises. The scope of cash holdings is set out in Table 2.

As will appear from Table 2, there has been a DKK 19.6 million net disposal of external funds. This figure should be seen in relation to a turnover of DKK 643.5 million, meaning that the holdings account for 32.4 per cent of turnover. In 2002, this percentage was 37.6.

Table 2: Cash holdings from grant-funded activities (comprising commercial and grant-funded activities)

DKK million	2000	2001	2002	2003
Government research councils	30.062	30.036	28.751	42.736
Other government funding providers	34.568	53.861	27.667	50.931
International funding providers – incl. the EU	23.072	9.075	17.101	14.280
Private funding providers	75.824	107.530	154.766	100.777
Total	163.526	200.502	228.285	208.724

On the staff side, the University of Copenhagen employed 4,869 full-time staff in 2003. While recent years have seen a rise in the number of externally funded full-time equivalent staff, 2003 marked a break with this trend, showing a decline in the number of externally funded staff and a rise in the number of ordinary staff.

The new University Act also triggers demands for changes in the area of internal management. The Act emphasises that the University may formulate visions and draw up strategies to this effect and the University's management has had to realise that the diversity and creativity that are, and should be, the hallmarks of the academic environments of the University should not necessarily be reflected in the management tools. Greater coherence is required between the University Performance Contract, the budget and the financial reporting. Similarly, tools are required to ensure that the more technical requirements set out in the University Performance Contract in terms of investment and capital management are met. Discipline in the use of tools and procedures is a prerequisite for meeting this requirement. To that end, the financial management project *KU2005* was launched in autumn 2003. In terms of financial planning and control, the objectives of this project are to prepare the University for its transition from an appropriations-funded state institution to a grant-funded, self-governing institution, in line with the requirements of the Act and the future University Board. A first overview at the end of 2003 shows that the University's capital structure appears satisfactory on the threshold of its transition to becoming a self-governing institution, even if the University's cash-to-current liabilities ratio may seem to be a little on the low side. Consequently, tight liquidity management will be needed. □

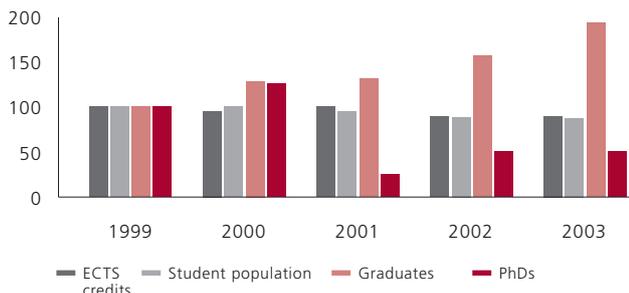
Table 1: Expenditure and profit on ordinary activities

In DKK millions	Expenditure framework 2003	Net expenditure 2003	Profit/Loss 2003	Brought forward from 2003	Carried forward to 2004
Faculties, total	1,948.0	1,877.2	70.9	62.7	133.6
Other, total *	857.6	884.8	(27.2)	7.2	(20.0)
Total	2,805.7	2,762.0	43.7	69.9	113.6

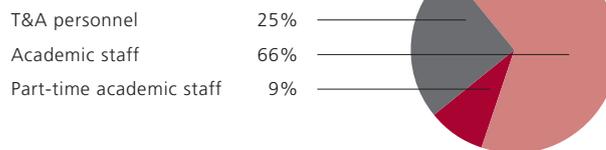
Note*: *Other, total* is comprised of buildings, the Central Administration, the School of Oral Health Care and BRIC

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Staff mix

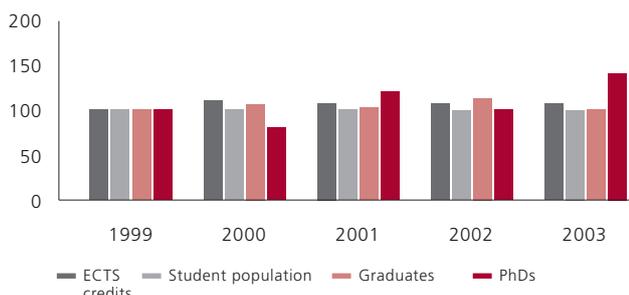


Purpose-allocated costs in DKK million	1999	2000	2001	2002	2003
Ordinary education	12.831	12.984	13.527	14.081	13.18851
Basic research	8.602	9.285	9.531	10.028	9.570852
Research funded by grants	3.824	2.513	3.413	8.457	11.12147

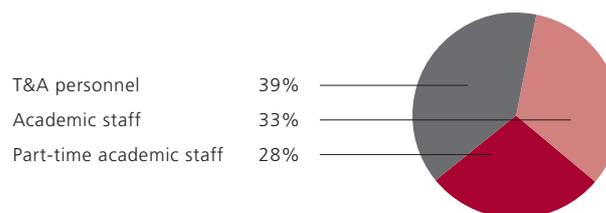
During the period under review, the statement policies and the allocation of costs have been amended. For example, some of the research education costs from and including 1999 are carried under basic research.

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Staff mix

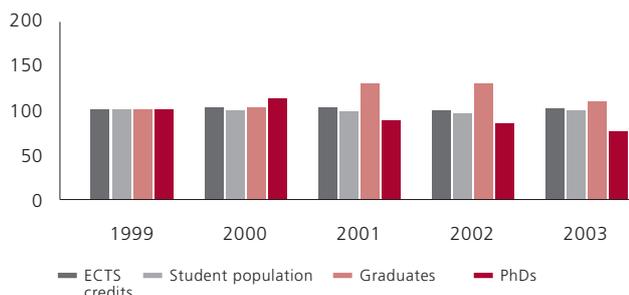


Purpose-allocated costs in DKK million	1999	2000	2001	2002	2003
Ordinary education	55.753	52.939	56.152	55.907	56.654
Basic research	12.873	14.406	20.31	24.008	23.205
Research funded by grants	2.17	3.043	3.691	5.451	5.547

During the period under review, the statement policies and the allocation of costs have been amended. For example, some of the research education costs from and including 1999 are carried under basic research.

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Staff mix

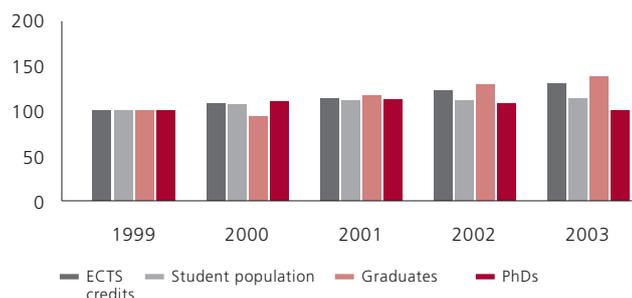


Purpose-allocated costs in DKK million	1999	2000	2001	2002	2003
Ordinary education	58.865	58.169	58.942	62.802	69.44281
Basic research	44.261	54.869	57.326	55.01	54.45451
Research funded by grants	33.852	42.647	41.417	45.807	38.66696

During the period under review, the statement policies and the allocation of costs have been amended. For example, some of the research education costs from and including 1999 are carried under basic research.

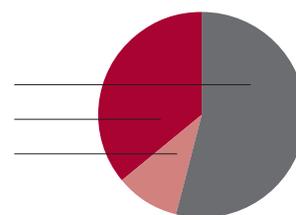
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Staff mix

T&A personnel 54%
Academic staff 36%
Part-time academic staff 10%

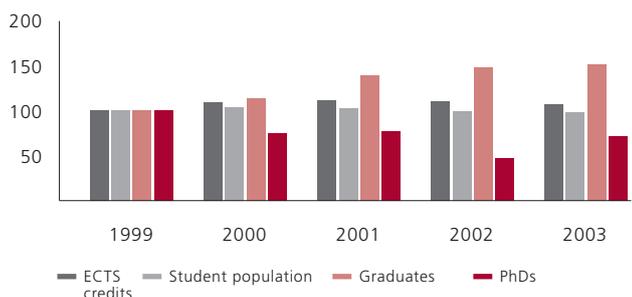


Purpose-allocated costs in DKK million	1999	2000	2001	2002	2003
Ordinary education	159.294	177.088	178.024	210.189	220.885
Basic research	191.714	208.657	200.669	212.218	225.9962
Research funded by grants	128.474	153.517	164.203	168.916	169.885

During the period under review, the statement policies and the allocation of costs have been amended. For example, some of the research education costs from and including 1999 are carried under basic research.

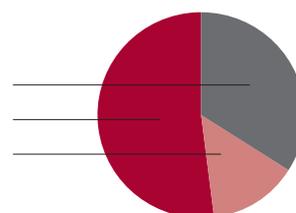
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Staff mix

T&A personnel 34%
Academic staff 52%
Part-time academic staff 14%

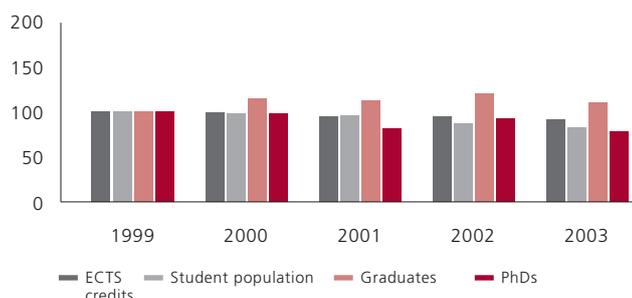


Purpose-allocated costs in DKK million	1999	2000	2001	2002	2003
Ordinary education	196.349	187.435	184.178	201.808	218.377
Basic research	154.837	135.208	132.453	137.153	138.762
Research funded by grants	49.242	51.102	55.540	56.092	59.801

During the period under review, the statement policies and the allocation of costs have been amended. For example, some of the research education costs from and including 1999 are carried under basic research.

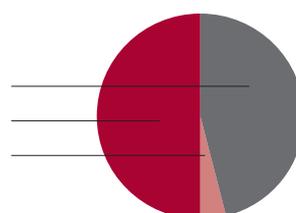
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Staff mix

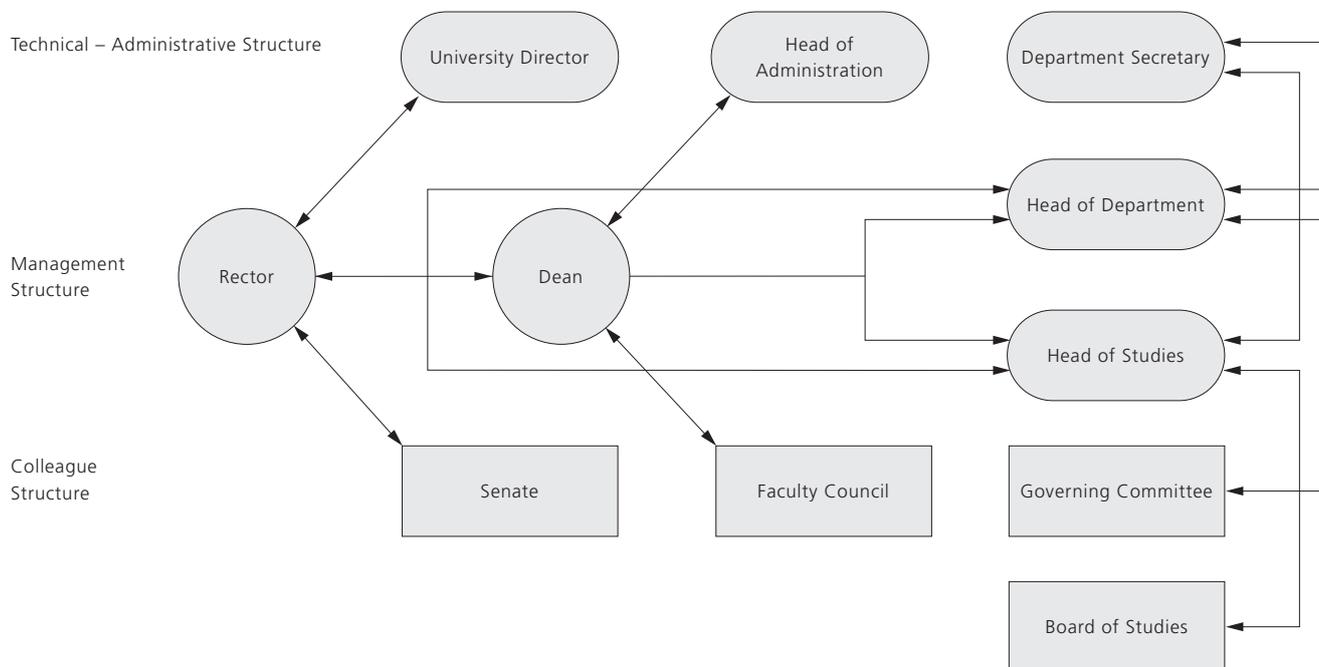
T&A personnel 46%
Academic staff 50%
Part-time academic staff 4%



Purpose-allocated costs in DKK million	1999	2000	2001	2002	2003
Ordinary education	206.865	194.549	198.347	215.945	213.428
Basic research	245.318	240.468	250.061	263.233	255.4504
Research funded by grants	191.926	270.036	271.868	290.698	257.3532

During the period under review, the statement policies and the allocation of costs have been amended. For example, some of the research education costs from and including 1999 are carried under basic research.

Steering structure 2003



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