

Bulletin

THE UNIVERSITY OF HONG KONG

Volume 6 Number 1 October 30, 2004

**Going for Gold –
The University prepares
for 2008 Olympics**



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Printed on recycled paper.

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2003 Hong Kong Eco-Business Awards
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 金獎(最佳環保報告)

Lion's Share of Competitive Research Funding

The University has increased its share of grants under the Competitive Earmarked Research Grants (CERG) scheme and come well ahead of other universities.

The 2004-05 grants for all eight local universities totalled \$403.5 million and the University received \$125.491 million, representing 31 per cent of the total. Last year's figure was 27.6 per cent. The University also received funding for the highest number of projects, 193.

"The above statistics are particularly significant as we are facing increasingly high standards of expectation and growing budgetary constraints on the CERG front," the Vice-Chancellor, Professor Lap-Chee Tsui, said in a message to staff.

CERG funding was decreased by 12.7 per cent this year, from \$462.3 million in 2003-04.

Our researchers were particularly successful in securing grants in the physical sciences, biology and medicine, and the humanities.

Professor Tsui said the focus for the future should be on sustaining success, by reviewing strategy and research planning and pursuing opportunities for cross-disciplinary investigative studies and shared facilities.



Cutting-edge Technology Used in SARS Cure Search

Cutting-edge technology has been employed in the latest search for a cure for the deadly SARS virus.

Using a novel approach known as chemical genetics, researchers in the Department of Microbiology have identified small chemical compounds that will prevent the coronavirus infecting cells in mammals.

Working in collaboration with scientists at the Aaron Diamond

AIDS Research Centre in New York, the team said the approach could also help develop drugs for other viruses including bird flu and herpes

But the team, which included researchers from the Departments of Microbiology, Biochemistry and Chemistry, are a long way from finding a cure for SARS.

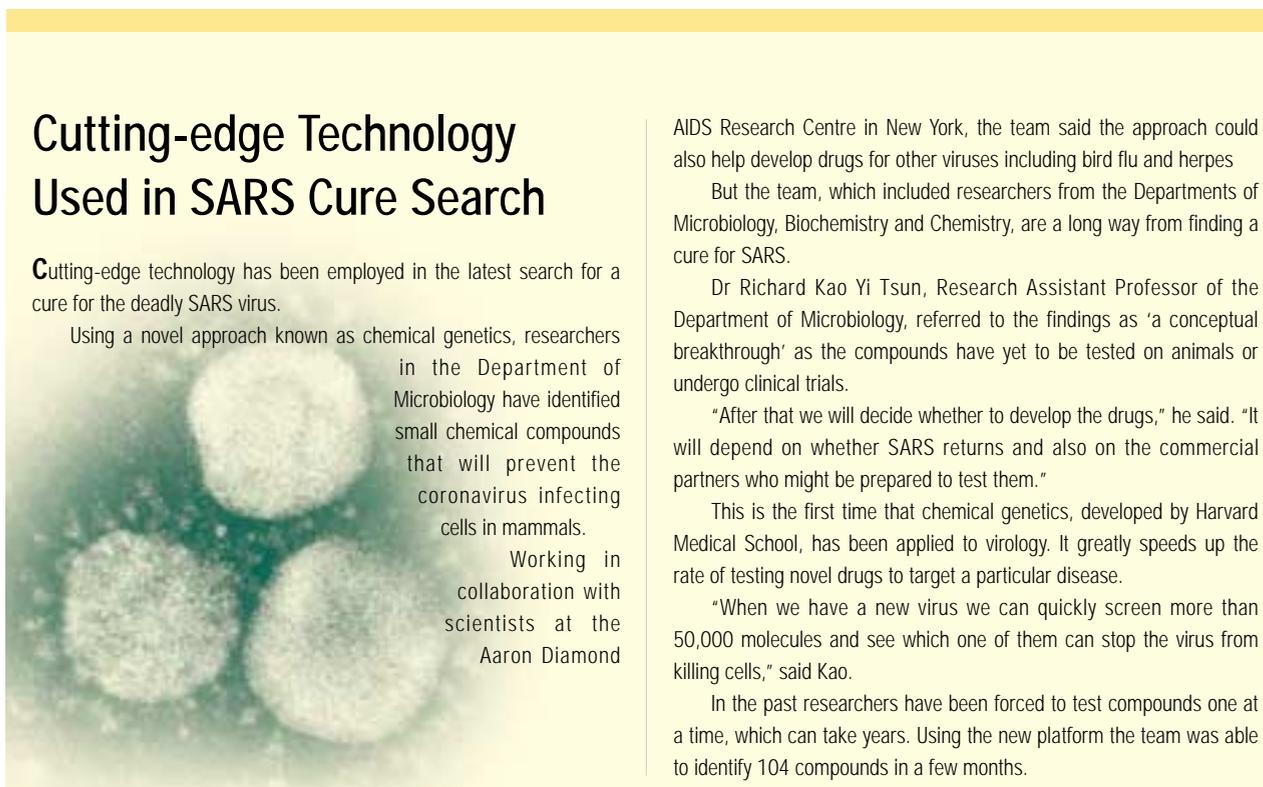
Dr Richard Kao Yi Tsun, Research Assistant Professor of the Department of Microbiology, referred to the findings as 'a conceptual breakthrough' as the compounds have yet to be tested on animals or undergo clinical trials.

"After that we will decide whether to develop the drugs," he said. "It will depend on whether SARS returns and also on the commercial partners who might be prepared to test them."

This is the first time that chemical genetics, developed by Harvard Medical School, has been applied to virology. It greatly speeds up the rate of testing novel drugs to target a particular disease.

"When we have a new virus we can quickly screen more than 50,000 molecules and see which one of them can stop the virus from killing cells," said Kao.

In the past researchers have been forced to test compounds one at a time, which can take years. Using the new platform the team was able to identify 104 compounds in a few months.



Silent Night

If you are married to a heavy snorer a silent night might be at the top of your wish list. And our researchers, in the Department of Surgery, may be about to make your dreams come true.

By inserting small strips of woven yarn made from braided polyethylene terephthalate (PET) into the soft palate of snorers Professor William Wei and his colleagues may have salvaged more than a few Hong Kong marriages.

Following a simply 15-minute operation the strips harden and control the vibrations of the soft palate which cause snoring.

In the world's first clinical trials of the device Wei, William Mong Chair of Otorhinolaryngology, said snoring was reduced by 50 per cent in most of the 12 volunteers. They also reported a drop in daytime sleepiness.

But the biggest changes were recorded by the spouses who said snoring loudness had dropped from a rating of 79 out of 100 before the procedure to 48, three months later. More importantly they also reported sleeping in separate rooms less frequently.

The procedure is expected to be available in Hong Kong by the end of the year at a cost of \$10,000 to \$12,000 – a snip compared to the price of a divorce lawyer.



Success of Learning a Language

If you want to learn Chinese or English your best option for success is to employ a teacher whose first language is either Chinese or English.

That is the advice of researchers in our Department of Linguistics who have been studying how our brains process language.

In developing a programme for education strategy on improving English standards in China, Dr Tan Li Hai, Associate Professor has discovered that Chinese pupils use the same part of their brain to learn both Chinese and English.

But as alphabetical languages rely on the construction of words and sentences rather than learning visual symbols by rote, Chinese children often encounter difficulties in picking up English.

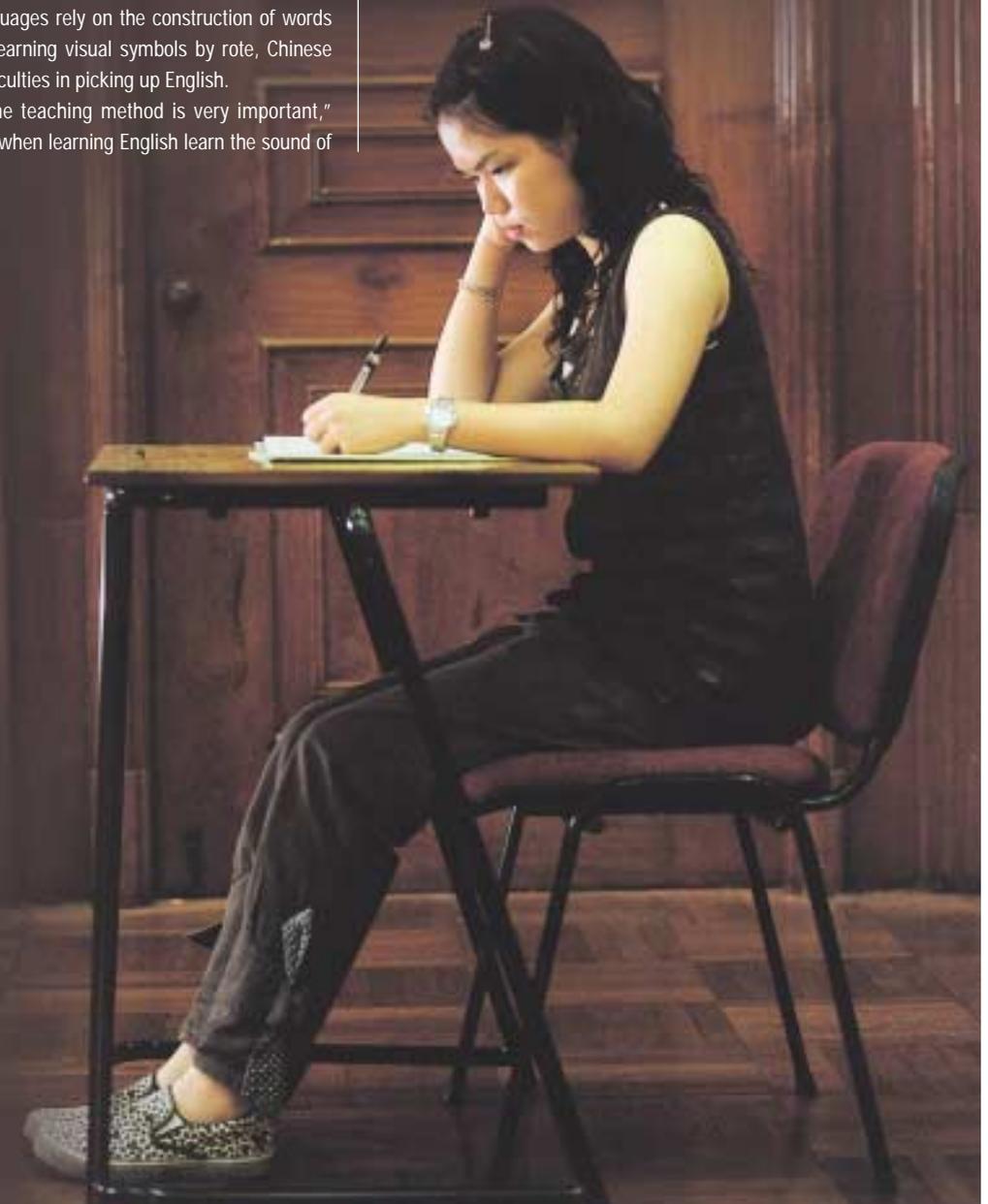
"We have found that the teaching method is very important," said Tan. "Western children, when learning English learn the sound of

the whole alphabet and then construct words and sentences with the letters.

"Chinese teachers use the 'look and say' approach. So they teach English in the same way they would Chinese. So the pupils use the same part of their brain."

What is needed said Tan is more native English teachers in China. "The government is aware of the problem. But, the only answer is to somehow employ more native English-speaking teachers," he said.

The project has been supported by grants from the Research Grants Council, the University Development Fund and the Chinese Government.





Going for Gold and Couch Potatoes

The 2004 Olympics may be over but our sports scientists are already on a mission to encourage competitors for the Beijing Olympics to train at our facilities in the run-up to the 2008 Games.

The Director of the Institute of Human Performance said he is keen to find a means of upgrading University facilities, like the Stanley Ho Sports Centre, to a level where they can be used by teams for pre-Beijing training.

"In the 12 to 18 months before the Games, and even up to the final weeks, many athletes prefer to train in an environment that is similar in terms of climate and culture," said Professor Bruce Abernethy.

"Hong Kong is well-situated to capitalize on that. It provides a cultural middle ground between East and West and has a climate sufficiently similar to Beijing to be attractive to visiting teams.

"And having Olympic athletes training on site would provide a new injection of energy and life to the campus", he added.

Abernethy hopes the University's sports facilities can become a stronger hub of activity not just for the University population but for the surrounding community as well.

"The more we can make the University interactive with the community – and physical activity is a wonderful vehicle for achieving this – the better it will be for everyone.

"It's hard to expect the community to support and engage with the University if they perceive our facilities, and the opportunities for exercise they present, as being out of bounds for them," he added.

The Institute is also hoping to capitalize on the enthusiasm Hong Kong people expressed for the 2004 Olympic Games by encouraging staff and students to become more active.

China's Olympic gold medalists were greeted like pop stars when they visited the University in September and Abernethy hopes that enthusiasm can be harnessed to create an environment where physical activity is more regularly integrated into everyday life.

"While we're keen on ways to maximize the sporting achievements of University students – and through schemes like the Sports Scholarship Awards allow excellence in sport and scholarship to coexist – of equal or greater importance is the mission to get the University population more physically active to capitalize on the many health benefits regular activity provides," he said.

With physical activity its core business, one of the challenges for the Institute is not just to support sport but also to get staff and students who are not necessarily 'sporty' involved in

regular activity.

The Institute plans to broaden its programme of offerings to include not just activities for sports skill improvement but also ones addressing general physical well-being and weight control.

"One of the 'hooks' to get people active is to make exercise a social event. Many people stay exercising longer if they can do so with friends or family rather than doing it alone. So we're trying to get communities of people together so that they support each other through the difficult process of taking up, and then maintaining a programme of physical activity," said Abernethy.

Hong Kong's slick, shiny gymnasiums are not an option for many people who may be turned off by either the general atmosphere or the competitive pressure to look good.

"Many people don't want to get into a leotard and work out in a gymnasium. People who haven't exercised for a long time generally feel self-conscious. So programmes to get sedentary people active need to be quite different," he said.

For this reason the Institute plans to progressively offer a greater range of programmes using gentler, repetitive forms of exercise like walking and swimming to help people get started and build physical activity into their day.

Another important goal for the Institute is to help integrate

expertise in exercise more systematically into the Hong Kong health system.

At the moment there is no obvious way for medical practitioners to refer people with, or at high risk of, chronic diseases related to inactivity to the expertise they might need to achieve a more physically active lifestyle.

For example, a person with adult onset diabetes may need to change their lifestyle through diet and exercise but a general practitioner does not typically have the time or expertise to help and monitor the patient's activity uptake.

A system which allows doctors to refer patients to an exercise specialist has proven advantageous in other countries. This ensures they are getting exactly the right type of exercise, advice and support they need. Abernethy describes this as a significant missing link in our current medical system.

"So this is one area we're keen to develop, if possible" he said. "By putting people with expertise in the chain we can try to develop an effective medical referral system for exercise that will help patient outcomes."

So with first-class facilities, a batch of new programmes and expert advice on the way there is no longer any excuse to be a couch potato.

Hard Slog for Windsurfing Medallist

Windsurfer Vicky Chan Wai Kei, the first Hong Kong athlete to win a gold medal in a World University Games competition, leads an all-work, no-play lifestyle that leaves her friends wondering where is the fun. She agrees.

Chan, who in the summer won gold in windsurfing at the World University Sailing Championship in Turkey, trains at least four hours a day, six days a week, and is in the final year of studies for a Bachelor of Engineering.

"I like competitions and I like the feel of being successful when I compete, but I don't much like the training," she confessed.

"It's very hard, but it's the only way I can get to be good for windsurfing competitions. Every competition involves 10 or 12 races and lasts for one week, so good physical fitness is quite important."

Training involves two and a half hours most weekday mornings and afternoons in Sha Tin, doing everything from running and cycling to rowing and weight training to build up her all-round fitness. On the weekends she spends many hours windsurfing at Stanley – also her home – no matter what the weather.

Then there are classes to attend and assignments to complete. When does she find time to study?

"I'm still free at night, so my life is only studying and windsurfing," she said.

There is a boyfriend, too – but he is a windsurfer and they meet mainly during training.

"It seems my life is quite boring compared to other students, but I love it. I love windsurfing," she said.

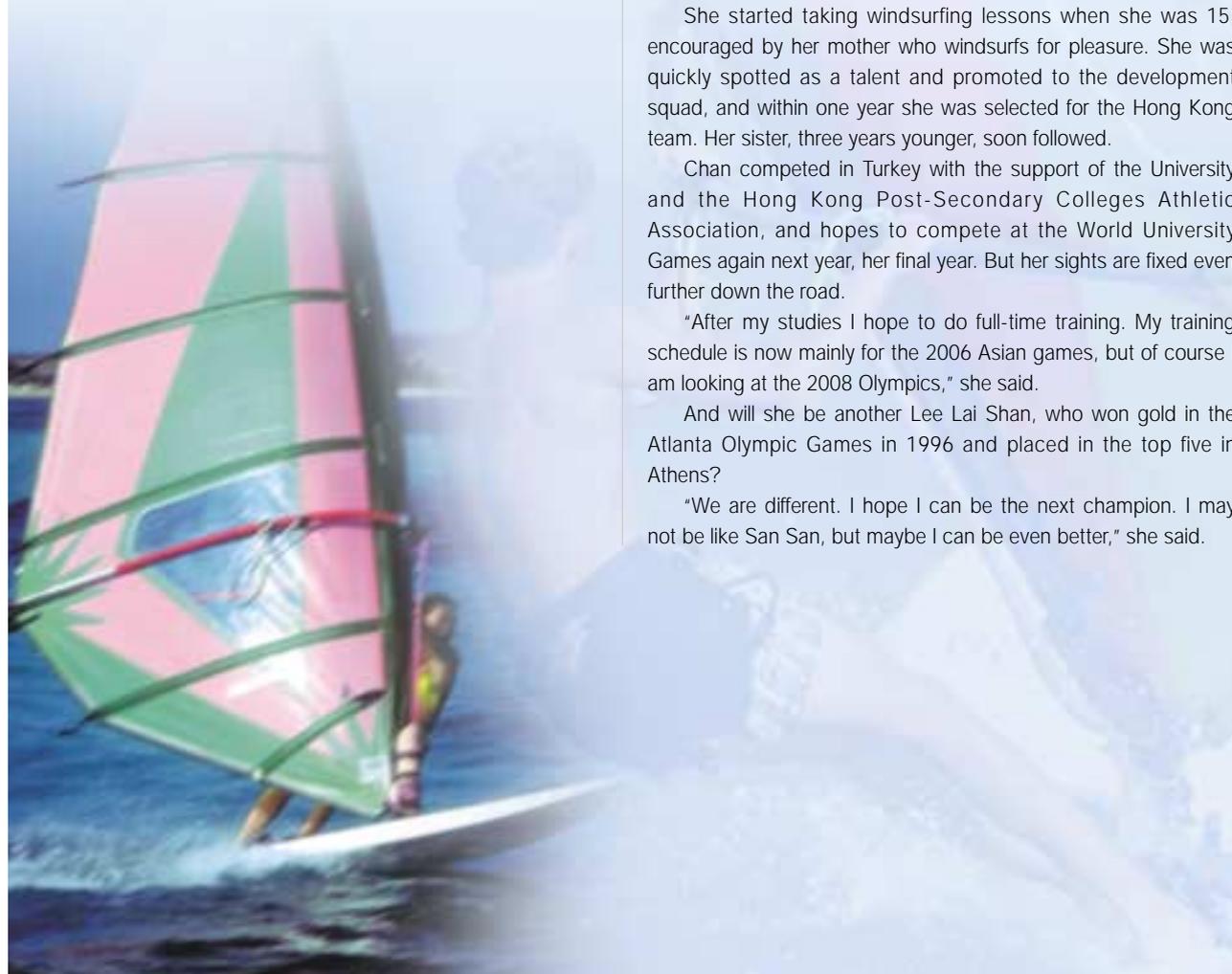
She started taking windsurfing lessons when she was 15, encouraged by her mother who windsurfs for pleasure. She was quickly spotted as a talent and promoted to the development squad, and within one year she was selected for the Hong Kong team. Her sister, three years younger, soon followed.

Chan competed in Turkey with the support of the University and the Hong Kong Post-Secondary Colleges Athletic Association, and hopes to compete at the World University Games again next year, her final year. But her sights are fixed even further down the road.

"After my studies I hope to do full-time training. My training schedule is now mainly for the 2006 Asian games, but of course I am looking at the 2008 Olympics," she said.

And will she be another Lee Lai Shan, who won gold in the Atlanta Olympic Games in 1996 and placed in the top five in Athens?

"We are different. I hope I can be the next champion. I may not be like San San, but maybe I can be even better," she said.



Pinpointing Dyslexia in the Brain

The actors Tom Cruise and Whoopi Goldberg may be two of the world's most famous dyslexics but the widely-held theory that the reading dysfunction has a single cause has been scuppered by researchers in the Department of Linguistics.

In a breakthrough that may have major implications for teaching, learning and neural surgery, researchers have found that Chinese children who suffer reading difficulties use different parts of their brain to Westerners.

The pioneering research, the results of which were published in the prestigious journal *Nature*, was led Dr Tan Li-Hai.

He found that dyslexia varies according to culture and not only on individual cognitive differences as previously thought.

This is the first study to be conducted on Chinese dyslexics, looking specifically at how their brain functions when reading.

As a relatively common reading and language disorder, dyslexia affects five to ten per cent of alphabetic language speakers. But it is also a common disorder in Chinese communities where it affects around two to seven per cent of children.

Working in collaboration with colleagues from the University of Pittsburgh and Beijing 306 Hospital, Tan used functional magnetic resonance imaging (MRI) to scan Chinese dyslexic children's brain activity while they were reading.

Their study suggests that for these children, the problem lies in the left middle frontal gyrus part of the brain.

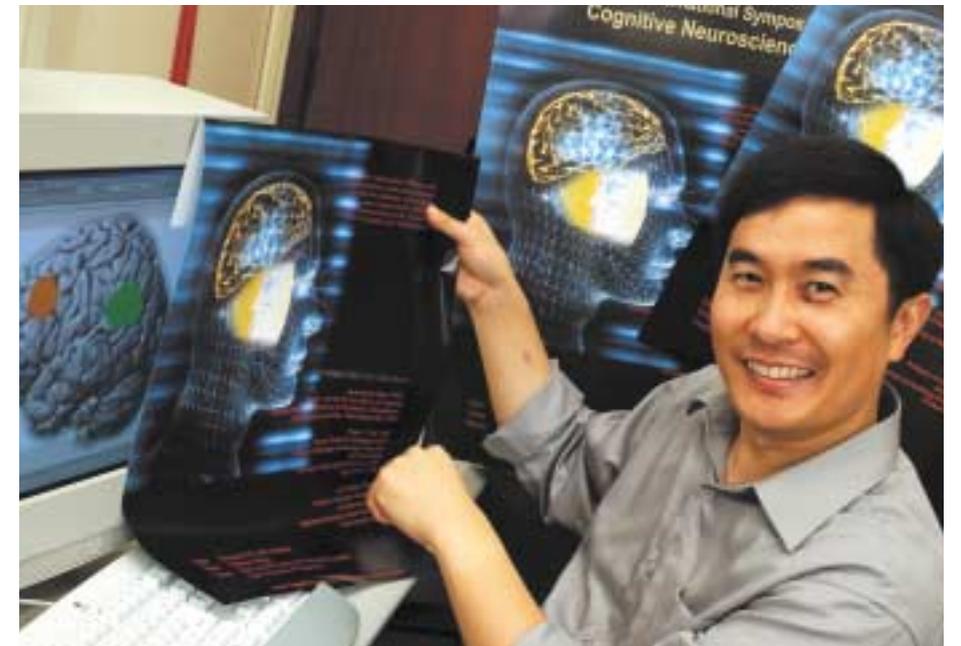
Because the relation between visual form and pronunciation is arbitrary in Chinese, in learning to read, children learn the characters' visual form, phonological information and meaning by rote.

Unlike alphabetical languages, there are no rules to follow in Chinese, so co-ordination and integration of these three kinds of information is crucial to successful reading ability. The left middle

frontal cortex serves this function.

Reading difficulty in Chinese develops not only from a failure to grasp the connection between a character's visual shape and its pronunciation but also from a poor understanding of the link between visual shape and meaning.

The research, supported by a Hong Kong Government Central Allocation grant disbursed by the Research Grants Council and the National Institute of Mental Health, greatly advances our understanding of the nature of dyslexia, said Tan.



"It also verifies our previous findings that the left middle frontal cortex is the centre of Chinese reading. I think this will have important implications for neuro-surgery and for all doctors who perform brain surgery.

"We now know that we must protect the motor and language areas of the brain if we are to avoid post-surgical loss of language ability," he said.

An ongoing research project includes a large-scale neural imaging study of 400 children in Beijing. This, hopes Tan, will help develop remedies to train Chinese dyslexics.

The Shaw Prize Lectures

Three of the four winners of The Shaw Prize in Life Science and Medicine chose to deliver their lectures at the University in September.

The Prize, established under the auspices of Sir Run Run Shaw in 2002 was awarded for the first time this year. It honours scientists, regardless of race, nationality and religious beliefs, who have achieved significant breakthroughs in academic and scientific research and whose work has had a positive impact on mankind.

The winners included Professor Herbert Boyer for his discoveries on DNA cloning and genetic engineering, Professor Yuet-wai Kan for his discoveries on DNA polymorphism and its influence on human genetics and Sir Richard Doll for his contribution to modern cancer epidemiology.

Herbert Boyer, Professor Emeritus of Biotechnology and Biophysics, UC San Francisco

DNA cloning has revolutionized the biological and life sciences by prising open the pathway to understanding the structure and function of genes in both health and disease.

Herbert Boyer's discovery that genes from any biological species can be propagated and cloned in foreign cells has had a phenomenal impact on how we view disease and its prevention.

Although he has not been an active scientist for 15 years he told our students that he hoped his lecture would provide guidance and inspiration for young scientists in their own careers.

Fate, he said, had played a major role in his success. "You can call it destiny, luck or chance but there were many instances where if this had not happened I would not be where I am today."

Born in 1936 in the United States he was in high school when Watson and Crick discovered the structure of DNA. The year was 1953 and it marked the beginning of the biomedical revolution.

"At that time I was a high school student with a dismal academic record. I was more interested in football and athletics," he confided.

Fortunately his coach also taught chemistry, biology, physics, mathematics, geography and geology – for which Boyer quickly developed a passion.

"It was fateful that this man was there at the beginning of my career," he said.

Boyer went on to attend the St Vincent's Liberal Arts College and espoused the value of a liberal education which



includes philosophy and history as well as science.

He finished his undergraduate degree having set out to study medicine. However he was not accepted by the one college to which he applied. "Again I think fate played a role."

Instead he headed to the University of Pittsburgh where he gained a master and doctorate degree in bacteriology in 1960 and 1963 respectively. Ten years later, after a 'fateful' meeting with Stanley Cohen at a conference in Hawaii the two published a paper that turned out to be one of the most seminal of all publications in the biological and life sciences.

Their discovery of DNA cloning has provided the foundation for much contemporary biomedical research and has led directly to the advances made in molecular biology and medicine over the past 30 years.

In 1975 fate again stepped forward in the shape of Robert Swanson who worked for a venture capitalist company. Looking for new technology that could be commercialized he approached Boyer and

they "pitched" to Swanson's company. "For some reason they liked me, perhaps it's because I didn't ask for much money," he laughed.

A year later Boyer started Genetech with just ten employees and \$200,000. Today US\$15.5 billion is invested in the development of new pharmaceutical products in California alone.

"I never thought of myself as a genius or above average intelligence but I worked hard. The primary stimulant was to work hard on something that interested me. This is what brought me here today."

And he concluded that "the most fateful event of my life happened when I was 16 years of age when I met the young girl who would become my wife."

Yuet-wai Kan, Louis K. Diamond Professor of Haematology, Medicine and Laboratory Medicine at UC San Francisco

Professor Kan Yuet-wai, one of our graduates was delighted to be back at his *alma mater* to deliver his lecture entitled *A Slow Boat from China*.

As a Wah Yan College boy he said one of his greatest early influences had been his teacher, Father S.J. Lawler, whom he described as 'a superb science teacher'.

Later, as a HKU student, he studied under a whole host of great and influential teachers including F.J.S. McFadzean, Stephen Cheng, Rosie Young and David Todd.

Kan spent two years at Queen Mary Hospital conducting clinical work but instead of taking the usual route of continuing his studies in England he headed for the United States.

"In 1960 McFadzean told me that if I wanted to do research I must learn biochemistry." He took those prophetic words to heart and never looked back.

After a short stint at the Royal Victoria Hospital at McGill University in Montreal, he moved to the Children's Hospital in Boston where he studied the development of haemoglobin in people.

And he had no qualms about mixing work with home life. In need of a normal model for an experiment he took a blood sample from his newborn daughter just minutes after she was delivered.

In the late 1960s and early 1970s, Kan published a series of papers on the traits and detection of thalassemia. Then, in 1972, he published a seminal paper on the detection of the sickle gene in the human foetus and provided insights on the potential for intrauterine diagnosis of sickle cell anemia.



The discovery of DNA polymorphism was directly responsible for the development of DNA-based pre-natal diagnosis of a variety of genetic disorders in families at risk.

The principle of DNA polymorphism was also the foundation on which the field of reverse genetics developed. Before the discovery of DNA polymorphism, genes were cloned by forward genetics, which involved the isolation and purification of the respective proteins followed by cloning of the cDNA's and then the chromosomal genes.

The identification of polymorphic markers in the human genome has permitted the localization of the disease-causing genes in their respective chromosomes and facilitated their cloning.

This new technology permitted the isolation of disease-causing genes without any knowledge of their gene products. It was truly revolutionary in the field of human genetics and the impact of these discoveries on the betterment of humankind has been astounding.

The seminal contributions made by Kan on DNA polymorphism made it possible to trace the transmission of disease-causing genes in families. As a direct result of these discoveries, novel DNA-based diagnostic

procedures have been developed to detect pre-natal genetic disorders such as sickle cell anaemia.

Embryonic stem cell technique can now be done in mice. But, Kan asked, "Can you do it in people? There are many difficulties with this."

He pointed to ethical and regulatory issues in terms of stem cell research and germ-line manipulation.

"It will take many years to solve these problems. I hope we will have newer methods of diagnosis in the future," he said.

Sir Richard Doll, Regius Professor of Medicine in Oxford 1969-1979

Richard Doll, widely considered to be the father of modern epidemiology, has made enormous contributions to our understanding of the preventable causes of cancer over the last five decades.

Born in Britain in 1912, his research has succeeded in saving millions of lives. In 1950 his publication with Sir Austin Bradford Hill, of a case control study established the definitive link between smoking and lung cancer.

Later, by establishing long-term cohort studies of the health of British doctors he and Richard Peto were able to identify additional risk factors for others cancers and heart disease.

In this lecture the 91-year-old professor talked about the importance of epidemiology as one of the oldest areas of medical science 'and for some the most important'.

Although epidemiology expanded to cover all sorts of uses after the First World War it did not gather pace until the end of World War II. The breakthrough, however, did not come until 1947 when Doll and Bradford Hill were asked to find out what had caused the dramatic increase in mortality from lung disease.

"It had increased 20 times in the 30 years from 1920 to 1950 in England and Wales," he said.



They discovered cigarettes to be the culprit and also linked it to several other diseases, including cancer of the mouth, lung and oesophagus, heart disease, peptic ulcer and asthma.

The research was conducted on doctors because they were easy to track over a period of 20 years or more. "And we chose wisely. When we showed that doctors were dying from smoking they took our results seriously and passed the information on to their patients."

He closed the study after 50 years because there were so few smokers left. The great majority, including himself, had given up.

"But now we had clear evidence of the benefit of stopping at any age." For those who give up around age 30, he found, hardly any harmful effect could be detected. Stopping at 50 reduced the risk by about half but giving up after 60 failed to improve health prospects at all. Lifetime smoking, he found, knocked ten years off life expectancy.

His results also showed the extraordinary result that modern medicine has on surviving from 70 to 90 years of age. "It nearly tripled between 1951 and 2000 in non-smokers."

For 25 years he has been interested in the relative contribution of different factors to the causes of cancer. "We now know that much more cancers are caused by viruses than we thought, particularly Hepatitis B and Human Papilloma Virus. Bacteria and parasites, like *Helicobacter Pylori*, which can cause stomach cancer, are also important."

But one thing he found that certainly causes cancer is obesity. It has been implicated in cancers of the breast, kidney, large bowel and other organs.

In his long career he has also drawn a link between alcohol consumption and breast cancer. But there is some good news; he has concluded that electrical cables do not cause cancer and that one glass of wine a day can cut the risk of coronary heart disease.

Hong Kong Coastline Gasps for Air

Air pressure fluctuations in coastal areas can initiate a process of underground 'breathing' that causes the soil under the surface to absorb or repel air. Consequently, like every living organism that inhabits them, coastal areas need to breathe. But in Hong Kong, where coastlines are reclaimed and paved over, that can present a problem.

The interaction between the sea and land is crucial to the breathing process, according to University scientists who for the first time described this interchange in an article published in *Geophysical Research Letters*.

Air exists in the soil between groundwater levels and the surface. When tides come in, the groundwater level rises, pushing the air in the soil to the surface. When the tide recedes, air is drawn from the surface into the soil.

"This breathing process is happening all the time," said Dr Jimmy Jiao Jiu Jiu, Associate Professor in the Department of Earth Sciences who, with PhD student Li Hailong, conducted the research.

"But in Hong Kong, rapid urbanisation has created a lot of real problems. A lot of areas are

covered by paved surfaces, which have very poor permeability, and the air cannot get in or out very freely."

Buckled concrete is one result of this. The air pressure under the surface can be so great, particularly when heavy rains occur at the time of quickly rising tides, that the pavement heaves up – a problem seen in Hong Kong.

Another problem occurs when pavement prevents air from getting in as the tide quickly recedes. This creates a vacuum, which sucks out fine materials such as silts and fine sand. Dr Jiao has a photograph of an engineer standing in an underground hole created by this effect that was two metres square. The surface area can collapse into holes like this.

Reclamation also contributes to the problem. Dr Jiao said some reclamation sites were filled by extremely permeable rock boulders and some incorporated buried old sea walls, unlike natural coastlines where sand, earth and other materials were less permeable and could absorb water waves from fluctuating tides. Reclaimed coastlines enabled tidal waters to move inland up to a few hundred metres from the shore. And inevitably, they were covered in paved surfaces, further aggravating the problem.

"The air gets trapped and because of that we have very high pressure when the sea level rises up and very low pressure when the sea level falls down," Dr Jiao said.

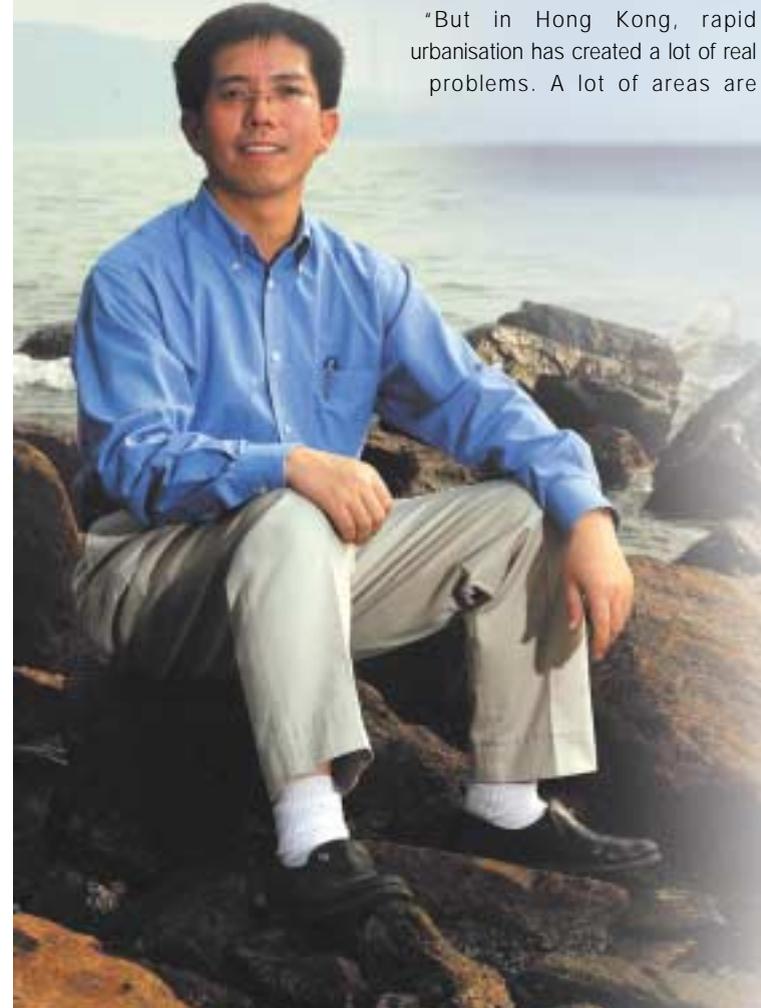
"So far as we know only Hong Kong has this problem. Few places in the world have experienced such intense urban growth as Hong Kong has over the last half century. This has created some environmental and engineering problems but at the same time also offered unprecedented opportunities for novel research."

That does not mean other areas are immune from the effects of pavement and reclamation, though. Dr Jiao pointed out many coastal areas around the world were highly developed, although at a pace less rapid than Hong Kong.

"Coastal breathing is a natural process. Anywhere we modify it, then we have problems," he said.

However, these problems could be reduced by being aware of the problem, he said. Land could be reclaimed by choosing the fill materials and structures carefully and applying surfaces that allow an exchange of air. Another solution is to install pressure release holes at specific sites in paved areas.

Dr Jiao added that the findings might have application in biology, in terms of studying the effects of coastal breathing on plants and animals.



Unearthly Discovery in Thailand

The theory that an asteroid likely killed off the dinosaurs is a well-known one. But objects from space have caused other catastrophic effects on Earth.

Dr Jason Ali, Assistant Professor of the Department of Earth Sciences has recently helped to explain a collision that devastated northeast Thailand and left behind glassy black fragments across a vast area stretching from Madagascar to Australia and China.

The fragments, called tektites, are pieces of molten rock that were thrown into the air at the time of the collision and came back to Earth with air and gas trapped in them.

Dr Ali became involved in explaining the mysterious source of these objects at the invitation of a *National Geographic* funded team of Australian and Thai scientists, who were investigating a strange geological deposit in northeast Thailand.

Huge blackened tree stumps and fossils of mammals had been uncovered at the site by builders digging for sand. This looked like the site of a collision – ‘ground zero’ – and Dr Ali was asked to date the deposit through its magnetic record. This information was then linked to the tektites.

“When they took me to the sand pits I was amazed. It was just like a giant had trashed one of those massive North American

lumberyards you sometimes see on TV. The trees were all haphazardly stacked, burnt and cleanly snapped off five or 10 metres above their bases,” he said.

“Both the force and the intensity of the fire required to do that must have been incredible.”

Dr Ali dated the impact to 780,000 to 800,000 years ago – relatively recent, in geological terms.

The findings have just been published in *Earth and Planetary Science Letters* by Dr Ali and Peter Haines, Kieren Howard and Clive Burrett of the University of Tasmania in Australia, and Sangad Bunopas of Thailand’s Department of Mines.

“There is pretty convincing evidence that an impact killed the dinosaurs 65 million years ago. This thing was quite a bit smaller, but the effect of these things depends on where they land,” Dr Ali said.

“Apart from the devastation of this forest, there was no real impact on animal or plant life. It hasn’t changed evolution like the dinosaur event.”

But it has provided a novel source of income for Thai farmers. They sell tektites to curio shops, where tourists, including geologists, snap them up.

Seeking a Cure for Spinal Cord Injuries

The University is playing a central role in new groundbreaking research into the treatment of spinal cord injuries.

Clinical trials on new therapies, involving cell transplantation and drugs, will be carried out at six centres on the Mainland and in Hong Kong, co-ordinated by Professor So Kwok Fai of the Department of Anatomy.

“For many years it was thought that if the spinal cord was damaged, it could not be repaired. But in the past few years there have been a lot of breakthrough studies of new therapies that suggest otherwise,” Professor So said.

“What the China Spinal Injury Network wants to do is to apply these therapies in systematic clinical trials.”

The University’s Clinical Trials Centre, headed by Professor Johan Karlberg, will co-ordinate the testing, with responsibility for everything from training and organising clinicians who deliver therapy and evaluate patients, to ensuring international standards are met.

“We are not treating patients at the centre. What we’ve been brought in to do is to ensure the quality of the testing – that it’s going to be ethical, safe and trustworthy,” Professor Karlberg said.

The testing will be carried out at hospitals in six cities – Hong Kong, Beijing, Guangzhou, Shanghai, Xian and Zhengzhou – and will involve a variety of treatments. The Hong Kong team includes Professor Keith Luk Dip Kei, Professor: Chair of Orthopaedic Surgery and Dr Wong Yat Wah from Queen Mary Hospital.

Cell-based therapy will be tested, in particular stem cells and the olfactory ensheathing cells (OEC), which surround the nerve cells in the nose and which receive sensations of smell. Both stem cells and OECs have been shown to successfully promote axonal regeneration in the spinal cords of animals.

“However, the future is not going to be just cell transplantation, but combinations with other drugs that will facilitate recuperation,” Professor Young said.

“The therapies studied in animals that are the most effective are combination therapies. Many therapies are ready to go to clinical trial, but there are not many places that can do it on the scale of China.”

Some of these therapies involve drugs that are already used by people, such as lithium, which is used to treat mania and depression. A research team at the University, including Dr Wu Wutian, Associate Professor and Professor So recently combined lithium chloride with chondroitinase ABC (an enzyme which digests scar tissue) treatment and found it significantly improved limb function in spinal cord injured rats. The results were published this year in the *Journal of Neurotrauma*, although it is not yet decided whether this treatment will be tested in the network.

Several treatments, including the use of OECs, have been carried out on a few hundred patients in Beijing and shown some success, although they were not conducted with control groups, protocol and other regimented circumstances required for a proper clinical trial.

The first task of the network will be to raise US\$2 million (HK\$15 million) to cover the cost of the initial trials. A Hong Kong Spinal Cord Injury Fund has been launched and Professor Young was confident they could raise the money to ensure testing started before the end of next year.

The costs are much lower than the estimated US\$800 million paid by drug companies to bring one new drug to market, because of lower costs in China and the fact the Clinical Trials Centre is a non-commercial centre. The timeline is also likely to be much shorter than the 10 years or so that are the norm in the commercial world.

“China offers a unique opportunity to accelerate these therapies from the laboratory bench to the bedside. You have dedicated doctors and a strong commitment from the University of Hong Kong to co-ordinate this task. This network could enable us to assess one treatment every year,” Professor Young said.

He expects to be able to treat 6,000 patients a year once the network is up and running. He also expects the results to be immediately acceptable to regulatory bodies in the United States and Europe because of the high international standards that will be applied in the trials.



New Deputy Vice-Chancellor Plugs in

The new Deputy Vice-Chancellor, Professor Richard Wong Yue Chim, sees his new role as one of focus and articulation.

'Focus', in terms of guiding the University in the quality of its research and teaching closer to an international standard, and articulating our goals and achievements to the University community and beyond.

"The focus for the University is to reach out not just to the local community but beyond, to set our case towards becoming a



more internationally recognized university. This will involve the fleshing out of the concrete steps that need to be taken for us to attain a more international profile," he said.

Wong expects the task to take some time, particularly in terms of the academic goal which will have implications for admissions, human resources and its possible impact on the curriculum.

"I think the University already is quite international in terms of its faculty. The issue therefore is one of reaching out," he said.

To do that the University needs to develop its own curriculum and expand its student facilities and concentrate on providing more residential hall space and a curriculum that fits in with most of the rest of the world.

"We need an architecture that allows different power plugs to plug in. So there are sockets that are adaptable to different types of systems – scheduling, time-tabling, whether examinations can

be completed sooner, particularly for exchange students if they are not here for the entire three years."

But internationalization is not restricted to the recruitment of students and teachers.

"Hong Kong as a city is beginning to become much more plugged in to the rest of the world and to the region. With that the academic content of the curriculum that we deliver has to be rich both in terms of regional content and be internationally recognized on the teaching and research side," he explained.

It is important that this content can articulate with work conducted at the frontiers of knowledge in the international academic community. "So moving the entire academic research and teaching curriculum in that direction and keeping it there is critical. To become recognizably internationally relevant as well as having our unique features is our major goal."

Wong, an economist, joined the University in 1992 and later served as Director of the School of Business and went on to become Founding Dean of the Faculty of Business and Economics from 2001 to this year. Educated at the University of Chicago where he gained his bachelor's, master's and PhD degrees he previously taught at The Chinese University of Hong Kong.

He is a leading figure in advancing economic research on policy issues in Hong Kong through his work as founding Director of the Hong Kong Centre for Economic Research, Asia-Pacific Economic Co-operation Study Centre and the Hong Kong Institute of Economics and Business Strategy.

He believes that getting the message of attaining international standards into the University is as important as getting it out into the community.

"It's like the old story, if you ask a bricklayer to build a wall and tell him that it's the wall of a cathedral suddenly the work takes on a whole new meaning. Articulating that brings a new sense of purpose and with that purpose people re-dedicate themselves.

"If we are all building a cathedral then, yes, people feel that there is a higher purpose and it fosters communication. From there onwards perhaps not only do they dedicate themselves with renewed vigour but they also find better ways of building the cathedral."

Washbasins, Clocks, Lamps and Toys

When Frank Dikötter abandoned the stage in favour of academia he hardly expected to find himself on a sojourn as Visiting Professor at the University.

The former classical guitarist gave up music to become Professor of Modern History of China at the School of Oriental and African Studies of the University of London.

His love affair with modern Chinese history and culture has brought him to Asia at least once a year. But now, as Visiting Professor in the Department of History he has the freedom to study his subject at close quarters.

The author of six books he is currently working on a project on material culture entitled *The Experience of Modernity: Material Culture and Everyday Life in Modern China*, in which he attempts to understand the transformation of everyday life from around 1870 to the communist takeover by de-crypting the changing cultural meanings and social uses of a whole variety of 'modern' objects, like gramophones, leather shoes and running water.

Sources for the project are scattered over widely different genres; from travel accounts to folk tales but Dikötter is keen to see objects in the flesh.

"All too often, everyday things considered to be 'modern' have been chucked out after 1949, either for political reasons or because only 'traditional' objects are considered valuable collectables," he said.

"Any help to get closer to the washbasins, clocks, lamps and toys and other things of republican China would be greatly appreciated."

Dikötter clearly draws little distinction between work and pleasure as his work frequently is his pleasure. Not even public holidays deter him from beavering away in his office. "I really like my work. I don't see what I do as work," he said.

That work involves an essay he will begin early next year for the Hong Kong University Press, which will challenge the textbook history of China between 1895 and 1949.

Accepted wisdom suggests 'pretty much nothing happened' during the period. But Dikötter has set out to turn that wisdom on its head by re-defining the period as a 'golden age' of openness, and he is likely to ruffle a few feathers in the process.

"Yes, it's a controversial way of looking at it," he conceded. "The sheer diversity of religion and culture, the amount of movement and openness, in terms of ideas, goods and people in China before 1949 is unprecedented."

Art, science, law, politics, the economy and religion all thrived during the period thanks to the catalyst of the Boxer Rebellion in 1900. This opened the door to new concepts like the Rule of Law, a civil code and modern examinations all of which were introduced during the first five decades of the 20th century. Universities, some built by missionaries from Europe and America, were cosmopolitan centres of knowledge.

When he is not rooting around in archives and libraries Dikötter can be found indulging his other passion – scuba diving. "You can say I'm a keen and experienced scuba diver," he said. But for now the guitar remains firmly tucked away.



Dental Research Benefits Hong Kong People



Professor Anne McMillan, Professor: Chair of Oral Rehabilitation in the Faculty of Dentistry said she was honoured to be appointed to a Personal Professorship.

McMillan is a registered specialist in Restorative Dentistry and Prosthodontics in the UK, and a specialist prosthodontist in Hong Kong.

She has an international reputation in the field of oral neurophysiology and gerodontology and is Past-President of the Neuroscience Group and the International Association for Dental Research.

Her special areas of clinical practice include jaw reconstruction using dental implants, management of temporomandibular disorders, and the prosthodontic treatment of the elderly.

She is examiner for the Membership in Restorative Dentistry of the Royal College of Surgeons of Edinburgh, and Chief Examiner of the specialty board of Prosthodontics, of the College of Dental Surgeons of Hong Kong.

McMillan said: "I consider it a great honour to be appointed to a Personal Professorship and to be in the vanguard of research at The University of Hong Kong especially as much of my recent research directly benefits the people of Hong Kong."

Her research papers have been published widely in the areas of: motor control processing in the human jaw muscles; jaw muscle pain; the psychosocial and functional impact of oral disease in the medically compromised patient and in the elderly; health status measures in the assessment of implant therapy outcomes; and, restorative dentistry. Invited lectures have also been delivered in Europe, the UK, North America, Australia and Hong Kong.

Get out of the Laboratory!

If Professor Lo Chung Mau, Professor: Chair of Hepatobiliary Surgery, needs reassurance of how successful the University's liver transplantation and surgery programme then he can find it in his pockets: business cards.

The surgeon pulls out a wad of business cards from Scandinavian medics eager to find out the secrets of the success story that Lo has helped write at Queen Mary Hospital.

With a success rate among patients approaching 100 per cent Lo has every right to feel pleased with the fact that this progress has brought him the reward of a professorship.

He said: "Obviously I am very pleased to become a professor but the greatest pleasure I get is from helping patients with severe liver problems.

"The work we do here illustrates how a clinician can bring clinical problems to the lab and apply the lab results to patients: that's the edge we have."

His team within the Department of Surgery is in demand because Hong Kong – like Mainland China – suffers from catastrophic levels of Hepatitis B viral infection.

Despite a territory-wide inoculation programme over the last 17 years the killer virus, which is spread by close personal contact, is present in 10 per cent of the local population.

Carriers are 100 times more likely to develop liver cancer and mothers are particularly vulnerable to passing the infection to their new-born children.

Liver cancer is also the second most common form of cancer in the territory.

Lo said: "This disease is an important issue and it is very difficult because a lot of the time the patients are in the advanced stage with not only a tumour but bad liver function.

"The problem is that even with surgery there is a high risk of recurrence and that is why we have been conducting research into this area of treatment."

This focuses on the molecular mechanism which allows Hepatitis B to recur in patients.

For Lo the driving concern of university clinicians must be to relate their research to the work they face day-to-day rather than lock themselves in ivory tower laboratories.

Maybe this focus on 'product' helps explain why the University has become so successful in the field of surgery and transplantation despite its late arrival.

The Hospital began tackling this in the early 1990s – nearly thirty years after the West.

By concentrating on live liver transplantation, Lo and his colleagues have been able to draw together the two strands of surgery and transplantation and create a powerful formula.

Up to two-thirds of a donor's liver is transplanted into a recipient. Incredibly, the donor's liver will regenerate to its natural size within two months.

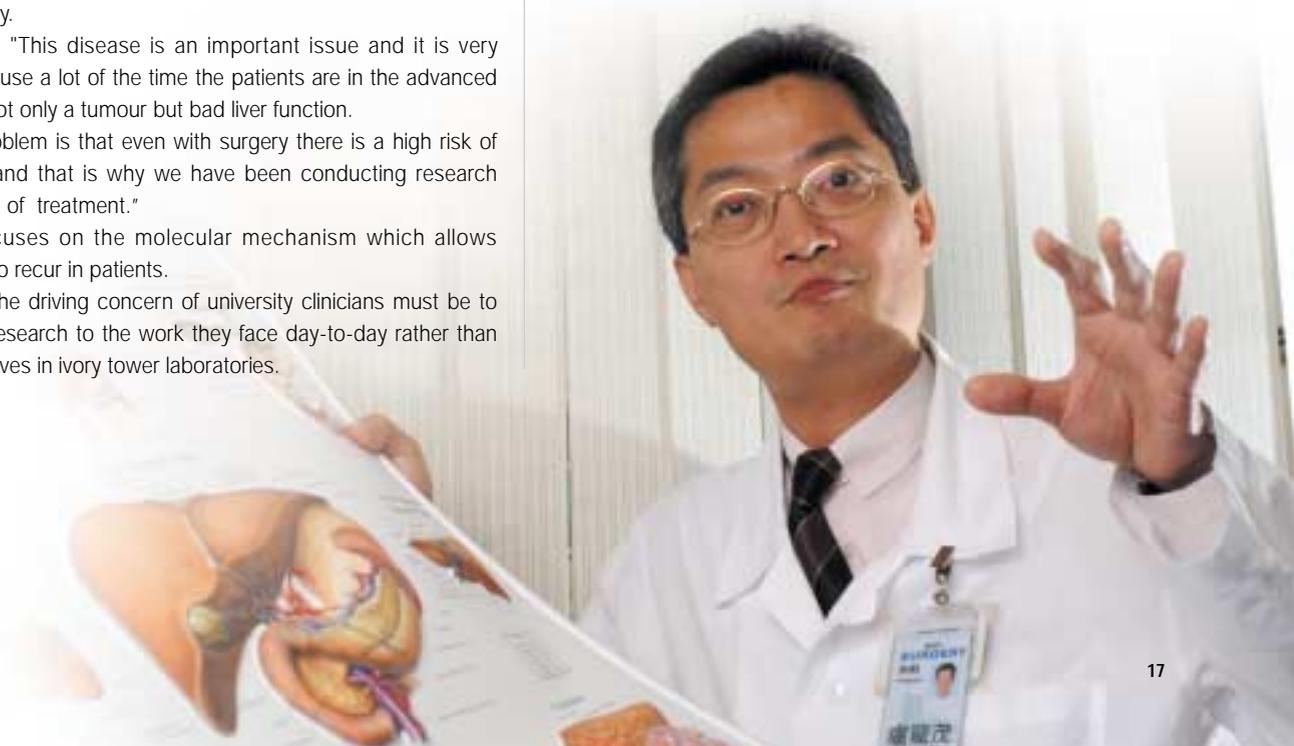
Lo said: "We pioneered this technique to the extent that this kind of operation has the highest success rate in the world and has drawn numerous visitors."

Even with a success rate approaching 100 per cent, Lo is not prepared to rest on his laurels and is constantly refining techniques.

The latest fruits of this work took centre stage in *Annals of Surgery* – regarded as the top journal in surgery – in July 2004.

The learned paper analyses the results of the first and last patients to better understand what the key to the University's success rate is.

Lo believes the rewards of this practical approach are obvious: "You cannot just sit in the lab and think."



Renaissance Woman

A Renaissance woman who combined a passion for science, the arts and the great outdoors, and left an indelible mark on the University as driving force in the development of the Department of Biochemistry, passed away peacefully at her home in Scotland earlier this year.

Now, thanks to the efforts of Dr Peter Cunich, Associate Professor in the Department of History, the University has been fortunate enough to acquire the papers of Professor Doris Gray.

Since Gray's arrival at the University in 1953 the Department of Biochemistry has flourished. She began work as Lecturer with a minimal staff and later, alongside her colleague Professor E. O'Farrell Walsh, guided the Department through its formative years. Today it is renowned for its research in the field of biomedical science.

Although she began her career in industry the end of the war provided Professor Gray with the opportunity she had longed for – to pursue her cherished ambition of an academic career in science.

As a graduate in General Science from the University of Western Ontario, Canada, she was strongly attracted to the emergence of a new and exciting branch of science – biochemistry. And she completed an MSc and PhD in the discipline at her *alma mater*.

In Hong Kong she was able to pursue her interest in the study of active compounds in our indigenous medicinal plants and went on to contribute numerous papers to renowned international journals on the subject. In 1955 she was made Senior Lecturer and a Reader eleven years later.

Capitalising on her interest in statistics she also published a book on the principles of statistics for students of medicine and biology and a laboratory manual on biochemistry for medical students.

In 1972 she was appointed Head of the Department and a Personal Professor the following year.

At the University she is remembered as a very private woman who was meticulous in her work and teaching methods. But also as a Head of Department who cared greatly about her staff. Dr

Lydia Cheng, Lecturer who worked alongside Professor Gray before her retirement in 1975 recalled: "She was very strict with students and staff but she also cared about them."

Dr Veronica Lam, Senior Lecturer who worked as a demonstrator under Professor Gray's headship recalled: "She was



very serious about teaching biochemistry especially to the medical students. Her style was more the classic type of student-teacher relationship and she took great strides to ensure that biochemistry was taught and taught properly."

Although a dedicated scientist she refused to immerse herself completely in her work to the detriment of other activities. A great lover of the arts she established a reputation as a music critic and she indulged her passion for the great outdoors through enthusiastic hill-walking, kayaking and climbing.

She retired from a Personal Chair in Biochemistry in 1975 after 22 years of uninterrupted service.

Hong Kong's Newest Tourist Attraction

The unveiling of the Sun Yat-sen statue last year was not only a nod to a distinguished alumnus, it was also the catalyst for a new voluntary service to make visitors and campus users more aware of the University's heritage.

The Green Gown Guides was launched in the summer at the instigation of a group of students, who noticed more local, Mainland and overseas visitors were coming to see the statue.

Visitors can now attend free one-hour tours on Wednesdays and Saturdays, led by student volunteers who have been trained by The University of Hong Kong Foundation for Educational Development and Research and the government's Antiquities and Monuments Office.

So far more than 800 people have attended the tours and more than 40 students have been trained as guides, dressed in T-shirts in hot weather and green gowns in cool weather.

Eva Yuen, a third-year BSc student, has taken people from several different countries on tours around the campus, including Korea, Japan, returnee emigrants from the United States and new migrants from the Mainland.

"Some people come because they know HKU is a famous institution and they want to have a look. Others have been to Hong Kong many times and say Ocean Park is too boring, they want to see something different," she said.

The visitors are not the only ones who get a different twist on things. The guides have to learn about the buildings and sites they pass every day. They now know such details as the fact that the Sun Yat-sen statue is 1.2 times larger than life, the Chong Yuet Ming Building is named after Li Ka Shing's wife, the tiles in the Main Building cannot be replaced and the Lily Pond is really a lily and lotus pond.

Training, books and the Internet provide the core of the guides' information. But alumni returning for a trip down memory lane can also be a source.

Third-year BBA student Jimmy Tang said: "There was one graduate who was more than 50 years old and he kept telling the other visitors about HKU when he was a student. It was like having an assistant – I was able to make the contrast with what it is like now. The tourists really enjoyed the experience."

"Bringing tourists across the 'time channel' of the University has increased my understanding of the school and my sense of belonging here. This has been a meaningful experience for me," he added.

Tours are free and held Wednesdays and Saturdays at 11 a.m. and 2 p.m., in English, Cantonese and Putonghua. No booking necessary. Tours also available in nine other languages but need to be booked two weeks in advance, e-mail hkutour@hku.hk.



Students Go Robotic

Fresh from final examinations, a group of engineering students put their studies to practical use over the summer and built robots for competition.

With little instruction or guidance, they designed two types of robots, one controlled manually and the other pre-programmed with built-in sensors.

Three robot teams were entered into the Radio Television Hong Kong-sponsored Robocon contest in June, in which the manual robot had to build a bridge and the pre-programmed robot travelled over it.

Two of the teams nabbed the top two positions against teams from other local universities.

Over the summer, the winning robots also travelled to Seoul for a regional Robocon contest. Although they did not earn a place, the students said they gained valuable experience for next year's competition.

"We put in a lot of hours. For most of us, it was the first time we'd built anything like this and we spent a lot of time

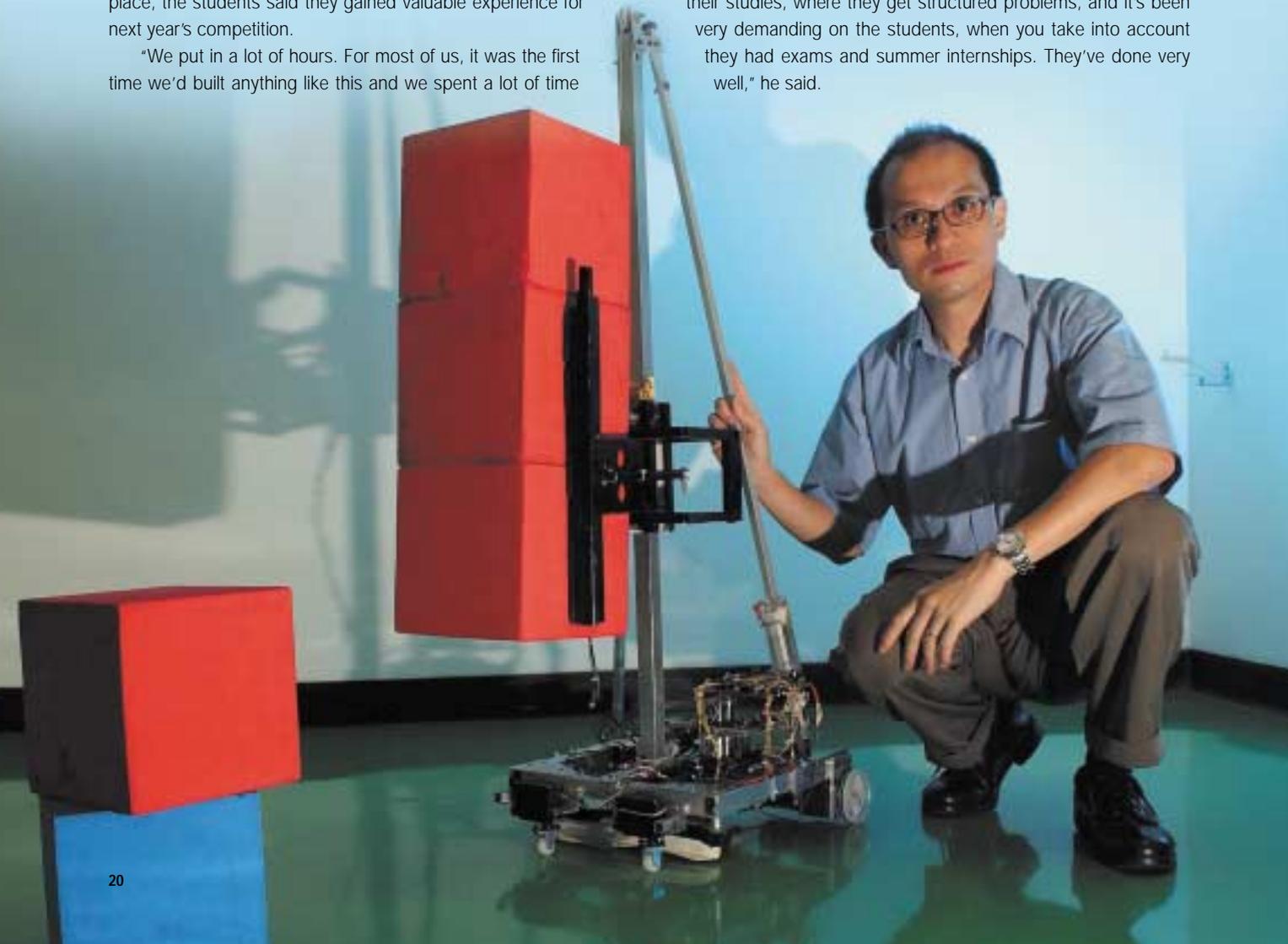
getting it wrong," Victor Fung, now a third-year mechanical engineering student, said.

"I think we'll be able to do better next time because most of us are staying with the team and we have experience and don't have to start from nothing. We can improve what we have done and try something more sophisticated."

The project involved about 20 first- and second-year students from mechanical, computer and electrical engineering and was the first time they had worked with classmates from other disciplines.

Dr Cheung Kie Chung, Associate Professor of the Department of Mechanical Engineering, who supported the students, said the project also provided new challenges for students.

"It's a more difficult task than what they would encounter in their studies, where they get structured problems, and it's been very demanding on the students, when you take into account they had exams and summer internships. They've done very well," he said.



Concepts in Wood



The Chinese affinity with wood expressed itself in complex and sensual works of art by seven sculptors at the University Museum and Art Gallery during September and October.

Concepts in Wood: Contemporary Hong Kong Wood Sculptor showcased the ancient skill of transforming trees into unique works of art depicting animal and human forms as well as more abstract pieces.

The Chinese have long manipulated wood in building houses, temples and bridges as well as sculpting it into Buddhist figures, Confucian sages and Taoist monks. In this exhibition seven leading artists displayed work ranging from the conceptual to the sensual.

Three generations of artists include the master wood sculptors Cheung Yee, Tong King Sum and Li Ki Kwok who built the foundations in the 1970s for a fine sculpting tradition in Hong Kong.

The younger sculptors include Chow Shun Keung, Kevin Fung Lik Yan and Victor Tai Sheung Shing who have shown similar focus in exploring the art of wood sculpting over the last decade. The only woman amongst them was the youngest of the group, Jaffa Lam, who has been keenly involved in numerous artistic activities.

The scope and variety of the works reflected the vibrancy of the Hong Kong sculpting scene.