香 港 大 學
THE UNIVERSITY OF HONG KONG

BULLETIN

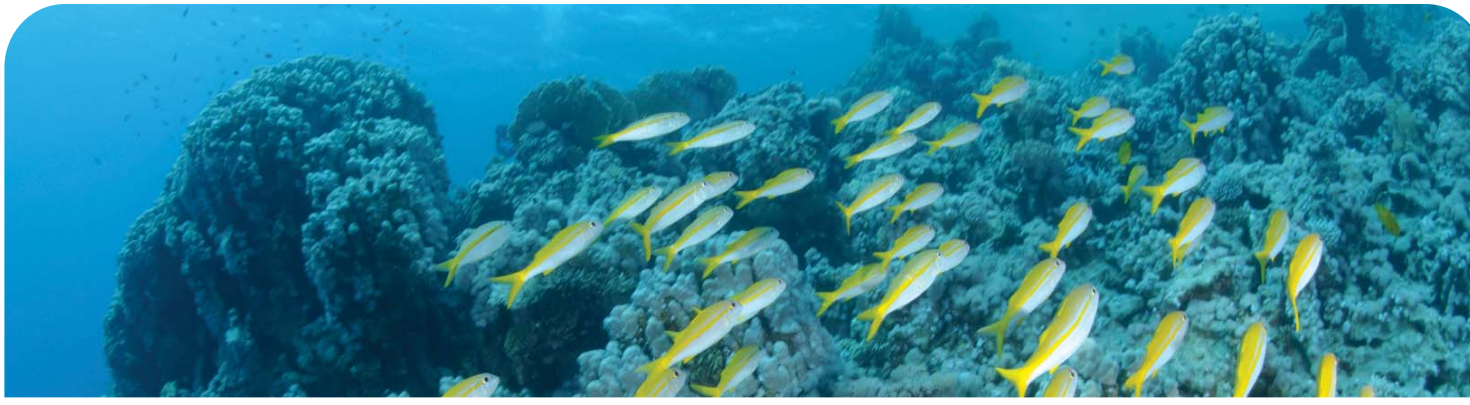
December 2011 Volume 13 No. 1

THE FRAGILE FOUNTAINS OF LIFE

Assessing the threats to our waters

Lessons from Burma
Nobel Peace Prize Laureate Aung San Suu Kyi holds dialogue with HKU members

Miraculous Mushroom
Yunzhi compound shown to suppress prostate cancer stem cells



Contents

More Nobel Laureates Celebrate HKU's Centenary

The HKU Centenary Distinguished Lectures are part of the University's Centenary Celebrations, bringing eminent scholars and their world-class scholarship to the University.

Virus killers and killer T cells

Professor Peter Charles Doherty, recipient of Nobel Prize in Physiology or Medicine in 1996, delivered the seventh lecture in this series entitled 'Virus Killers and Killer T Cells'.

Professor Doherty shared his expertise and knowledge on the mechanism, history and achievements of human beings fighting against viruses, and also his insights on the future development of anti-viral vaccines from an immunology perspective. Professor Doherty said that since Hong Kong is an international city which attracts people from mainland China and different countries, viruses may mix and spread here. However, he also thinks that Hong Kong is one of the best places in the world to study influenza, with outstanding scientists and the diligently kept records of the hospitals and schools to work with.

Additionally, 25 senior secondary school students and medical undergraduates joined Professor Doherty for 'Lunch with a Laureate', another Knowledge Exchange component of the Centenary Distinguished Lecture series.

Connecting patients to promising research

The ninth lecture was delivered in December by **Professor Elizabeth H. Blackburn** and **Professor Susan Desmond-Hellmann**, entitled 'The Future of Medicine: Connecting Patients to Promising Research'.

The two international experts on biomedical research and drug development discussed Professor Blackburn's groundbreaking work on aging and how it applies to the future of medicine.

Professor Blackburn was awarded the Nobel Prize in Physiology of Medicine in 2009 for solving one of biology's great mysteries: how chromosomes are protected by telomeres and the enzyme telomerase. Telomeres and telomerase play an important role in various diseases such as cancer, cardiovascular disease and diabetes. The research also lets people understand how cells and bodies age.

Deputy Vice-Chancellor Professor Roland Chin (left) and Professor Doherty.

While people put their focus on the question how can one live longer, Professor Blackburn pointed out that one should also learn how to live healthier. "We should think about health span but not just life span," said Professor Blackburn. "Research findings tell us that high stress and pessimist are correlated to short telomeres, and in some cases higher disease risk, while a positive frame of mind is correlated to better telomeres maintenance." Exercising, like walking up the stairs, can also help one to maintain longer telomeres, added Professor Blackburn.

Professor Susan Desmond-Hellmann, Chancellor of the University of California, San Francisco, gave a talk at HKU on translational medicine. "Our mission at the University of California San Francisco is to 'Advance Health Worldwide'. The two ways that we can best achieve that mission are to accelerate the translation of groundbreaking science into promising therapies for patients, and to do this critical work not just locally, but globally – through collaborations with outstanding scientists and clinicians here in Hong Kong and around the world."

A group of 20 senior secondary school students and HKU undergraduates also met Professor Blackburn for 'Lunch with a Laureate'. ■

For further details of the Lectures please visit: http://www.med.hku.hk/centenary_lecture2011/ and http://www.tto.hku.hk/public/centenary_lecture2011/

Professor Susan Desmond-Hellmann, Chancellor of University of California, San Francisco.

Professor Elizabeth Blackburn shared her insights with the HKU students and secondary school students at the occasion of the 'Lunch with a Laureate'.

A Lotus Flower Floating on Water
Aung San Suu Kyi's First Dialogue with HKU Members and the Hong Kong Public

Burmese political leader and Nobel Peace Prize Laureate Aung San Suu Kyi appeared via live video link-up to interact with HKU students and faculty, and the Hong Kong public at the University's eighth Centenary Distinguished Lecture.

The opening remarks of Daw Suu, as she is respectfully called, proved to be appropriate both for her University audience and for the military leaders who have detained her for a total of 15 years since 1989.

"One of my favourite dicta is that people should not be categorized as good or evil, wise or stupid. It would be much more sensible to divide them simply into learners and non-learners."

"The highest form of learning would be that which makes us caring and responsible citizens of this world, and equips us with the intellectual means necessary to translate our concerns into specific deeds."

Daw Suu has been pursuing that ideal for many years, including her recent stint of house arrest, which lasted more than seven years and saw her released last November.

During the dialogue, she also praised the University for achieving something that remained out of reach in her country.

"One hundred years of furnishing the world with young people who have been provided with the capacity to think independently, to express those thoughts cogently, and to use them for the betterment of our world is an achievement of which this University can be justly proud," she said.

At the end of the talk, which attracted more than 1,800 registered guests who had to be accommodated in several halls, Daw Suu was presented with calligraphy (photo above) by distinguished scholar Professor Jao Tsung-i of a Buddhist phrase that encapsulates Daw Suu's position: "Like a lotus flower floating on the water. ■

Please visit http://www.hku.hk/socsc/assk/ for further details of the Lecture.

Please see p. 44 for a behind-the-scenes look at the Lecture.

Vice-Premier Visits HKU and
Attends Centenary Ceremony

Vice-Premier Li Keqiang of the State Council visited the University on August 18, 2011 and attended its Centenary Ceremony.

The ceremony was held in Loke Yew Hall and officiated by the Chancellor, Dr the Hon Donald Tsang. A total of 600 staff, students, alumni and guests attended the ceremony. Among the guests were presidents from over 20 local, mainland and overseas universities.

In addressing the assembly, the Vice-Premier noted that: "In a century full of challenges, HKU has nurtured over 130,000 graduates and talents with great vision and virtue, who are dedicated to making developments in science and serving the community. These alumni have made significant contributions to the prosperity of Hong Kong and the rise of China, and also to the advancement of civilization."

Also attending the ceremony was another Guest of Honour, Lord David Wilson, Chancellor of the University of Aberdeen, who praised HKU for its established network of academic links with universities globally.

"These international links are of huge importance to all top-ranking universities in the world. Great universities are not just local universities; they are world universities," said Lord Wilson. "Long may the University of Hong Kong continue to be a powerful influence and a source of academic excellence in Hong Kong, in the whole of China, and in the world as well," he added.

Reflecting on the University's history, Vice-Chancellor Professor Lap-Chee Tsui said that it was in the context of wisdom and virtue that HKU celebrates its centenary, pointing out that: "The dimensions of 'knowledge, heritage and service' represent the missions of our multiple roles: to be a knowledge hub for learning and research, a cultural crossroads where East meets West and the past illuminates the future, and a service platform where the University nurtures global citizens and is itself nurtured by the community."

The ceremony was a highly complex event to organize and there were imperfect arrangements for security, seating and invitations, as conveyed by members of the University and the Hong Kong community. The University Council subsequently set up a Review Panel to establish appropriate mechanisms and policies for University events in the future in a way that reflects its continued commitment to its core values of freedom, liberty and diversity. ■

The Vice-Premier and Dr the Hon Donald Tsang unveiled plaques to commemorate the establishment of the State Key Laboratory of Emerging Infectious Diseases (Partner Laboratory at the HKU – Shenzhen Branch) and the Guangdong Stem Cell and Regenerative Medicine Research Centre (jointly established by HKU and the Chinese Academy of Sciences Guangzhou Institute of Biomedicine and Health). The Vice-Premier also announced the allocation of funding to subsidizing the studies, exchanges and scientific research of HKU students and academic staff on the mainland.

In his speech, Lord David Wilson, Chancellor of the University of Aberdeen, recalled his days studying at HKU 50 years ago. He also praised the internationalization efforts of the University and suggested that one of HKU's most famous alumni, Dr Sun Yat-sen, would be proud to see how successful and respectful his alma mater had become.

Apart from attending the ceremony, the Vice-Premier also met with different members of the HKU community. Among them were 30 HKU students from various faculties and 40 overseas and local university presidents, distinguished scholars and academicians, including the renowned contemporary sinologist, Professor Jao Tsung-I.

HKU Academic Wins Inaugural University Grants Committee Teaching Award 2011

Mr Richard A. Glofcheski, Associate Professor in the Department of Law, HKU, was presented with the inaugural University Grants Committee (UGC) Teaching Award.

The award honours academics in the UGC-funded institutions for their teaching performance and achievements, as well as their leadership in and scholarly contribution to teaching and learning within and across institutions.

In a message to HKU staff and students, Vice-Chancellor Professor Lap-Chee Tsui said how pleased and proud he was to hear the news, adding: "Rick has taught at the University for over twenty years and is well-known to his colleagues and students for his relentless pursuit of excellence in teaching."

"He was awarded a University Teaching Fellowship in 2004, the Outstanding Teaching Award in 2008, and most recently, the University Distinguished Teaching Award in 2009," noted Professor Tsui.

Mr Glofcheski said that having the recognition of the academy was important and a reminder that teaching and learning was the very core mission of the University.

His message to his fellow teachers was: "We can only learn to be better teachers through our students. It is only by engaging students and their learning, and by reflecting on that learning, that we can learn to become better teachers. My students have inspired and motivated me to new ways of thinking, new ways of thinking about learning."

He dedicated his award to his students, declaring: "I have learned much from my students. They have taught me a lot."

The UGC's Awards Citations describes Mr Glofcheski as being "an imaginative and innovative teacher-scholar. He is strongly committed to using creative approaches to assessing student learning, and he raises the awareness of the important role of assessment for learning both within his institution and internationally.

He has developed localized teaching materials in the Hong Kong context and used them to cultivate a wider civic awareness in his students.

He is clearly an exceptional educator whose work will bring about positive and long-term impact on the culture of assessment and hence learning and teaching in the entire UGC sector." ■

Mr Rick Glofcheski accepts the UGC award for his excellent teaching.

Further details from the UGC about the award can be found at http://www.ugc.edu.hk/eng/ugc/publication/press/2011/pr08092011.htm

Typhoon? What typhoon? Honorary University Fellowships Awarded Despite Storm

Although Hong Kong was in lockdown for most of the day, as Typhoon Nesat swept into the city on September 29, 2011, the typhoon signal 8 was lowered just in time for the Honorary University Fellowships Presentation Ceremony to be held as scheduled.

The ceremony was presided over by Dr the Hon David K.P. Li, Pro-Chancellor of the University, and saw ten distinguished individuals awarded with Honorary University Fellowships in recognition of their contributions to the University and the community.

At the ceremony, HKU Vice-Chancellor Professor Lap-Chee Tsui thanked those attending for having "literally braved rain and storm to come and join us!"

He added that the ten individuals who were awarded Fellowships had shown not only how greatly they believed in the University, but also how deeply they appreciated the value of education, and how important the welfare of society is to them.

He added that this year's ceremony was particularly special, because it took place as the University was celebrating its Centenary.

"As we take stock of the history of the University, one point that frequently comes up is how impressive it is that a University with fairly modest beginnings could have grown to achieve the worldwide recognition it has today. And what struck me most are the feelings of loyalty, passion and commitment the University seems to inspire."

Back row from left: The Hon Anna Wu Hung-yuk, Professor Siu Man-keung, Dr David Sin Wai-kin, Mr Patrick Poon Sun-cheong, Ir Mak Chai-kwong, Dr Laurence Hou Lee-tsun, Mr Stanley Chu Yu-lun, and Mr Paul Cheung Kwok-wing.
Front row from left: Dr Ronald Leslie Zimmern, Professor Lap-Chee Tsui, Dr the Hon David Li, Dr the Hon Leong Che-hung, and Dr Robin Chan Yau-hing.

Professor Tsui praised the ten honorary fellows as "true examples of commitment, determination, generosity and leadership, because they themselves lead by example." ■

For the recipients' citations, biographies and photos, please visit: http://www.hku.hk/honfellows/

Zoroastrian Community Commemorates Sir H.N. Mody's Generosity to the University on His Birthday

Every year on October 12, the birthday of Sir Hormusjee N. Mody, the local Zoroastrian community commemorates his generosity to the University by having their priest place a garland of flowers around the bust of Sir H.N. Mody, located inside the Main Building.

The bust was presented to HKU on June 17, 2002 by the Zoroastrian Community of Hong Kong to commemorate Sir H.N. Mody, a distinguished Parsi businessman and a renowned philanthropist and benefactor, who made a major donation towards the founding of HKU.

The Zoroastrian priest (Ervad) Homyar G. Nasirabadwala, who placed the flower garland on Sir H.N. Mody's bust this year, said: "Sir H.N. Mody was one of the most illustrious and respected members of the Zoroastrian community. He made a considerable fortune from his businesses, but he returned much of it to the land and people that made him successful. To honour this great man I come here every year on this day and bow my head in respect." ■

Zoroastrian priest (Ervad) Homyar G. Nasirabadwala places the flower garland onto Sir H.N. Mody's bust.

HKU Launches Free Mobile App for Tracing the Changes in Urban Hong Kong

HKU launched a free mobile app 'Hong Kong Tram Trail – Traces of Hong Kong's Urban Development' in September 2011. Through this location based service app, tram passengers can take self-guided tours and learn about the urban history and development of Hong Kong along the tramway from Western District to Causeway Bay.

Through GPS, the app will automatically locate the zone that the tram passenger is in and play the corresponding videos and pictures contrasting the old and new Hong Kong. The app provides Cantonese, English and Putonghua narration, and is available for free download.

The 'Hong Kong Tram Trail' app is part of the University's Centenary Celebrations activities, and was designed and developed by Professor Anthony Yeh of the Department of Urban Planning and Design, together with alumnus Dr Joseph Ting, former Chief Curator of the Hong Kong Museum of History, as consultant. The University is also grateful for the support of Hong Kong Tramways, Limited. ■

For details, please refer to the announcement at http://100.hku.hk/

Tram passengers can enjoy free mobile app and learn about the changes of urban Hong Kong.

A Haven of Learning Amid Great Change

In this second of a series of stories on the University's centenary, we look at how teaching and learning at HKU have evolved over the years in ways that reflect and advance the development of both Hong Kong and the region.

Hong Kong in the early 1900s was perhaps not the first place one would think of as a site for a new university. There were few children – only 12 per cent of the population was aged five to 15 – and the population was transient. But times were changing and its leaders were determined to be at the vanguard.

Increasing numbers of young people from China were travelling to North America and Europe for a Western education, an endeavor that was costly and required prolonged separation from families. At the same time, other nations such as Germany were laying plans to establish universities on Chinese soil. Why not have a university in British Hong Kong that maintained a standard equal to English universities, taught in English and was secular (missionary groups were also planning universities at this time)?

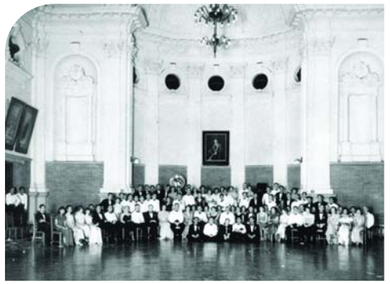
As the Governor, Sir Frederick Lugard, put it: "It will . . . promote a good understanding and friendship between British and Chinese. It will afford a cheaper means of acquiring higher Western education for Chinese, without exile to the West for a long period, involving denationalization and disunion from their parents and people."

A regional university at first

This goal led to the University of Hong Kong opening its doors in 1912. It had two faculties, Medicine and Engineering (Arts was added in 1913) and 54 students, and offered a four-year curriculum. It was a purely teaching institution, drawing students from China, other British colonies such as Malaya and, less so, from Hong Kong.

The focus was on producing doctors, engineers, teachers and administrators for the region and while that remained the aim, the curriculum focus and student body began to change in the years leading up to the Second World War.

Student enrolment had increased to more than 600, but the intake from the Mainland was shrinking while local student numbers increased (though they were still only 34 per cent of intake in 1938). Academically, there was recognition that more specialized units were needed to teach subjects of importance to the region and the times. A Department of Chinese was formed in 1927, while in 1939 the Faculty of Science was hived off from the Faculty of Arts (which continued to teach business, law and other subjects not covered by the other faculties).



The Great Hall inside Main Building before the war.

Ruins of the Great Hall in 1945, renamed as Loke Yew Hall in 1956.

Just before the war, there was talk of moving to a three-year degree and even re-positioning the University. Senior administrators began asking, should the University face towards Hong Kong or China?

Post-war changes

The answer to that question did not come until after the war, which had brought classes to a halt as the Japanese took over the grounds and killed or imprisoned many staff. But the post-war turmoil in China and the influx of refugees made the response inevitable: HKU had to put all energies into helping Hong Kong to cope.

More infrastructure and medical and social services were urgently needed. The University also saw greater competition for places as the influx from China included young people keen to further their education. In 1954 the curriculum was reduced from four years to three, in part to allow more students to be admitted and to bring HKU in line with other Commonwealth universities.

Graduates during these years played a critical role in Hong Kong's development, taking up leadership posts in all sectors of society, including government, business, law, social services and culture. They helped to re-build Hong Kong and laid the groundwork for the emergence of a more stable society, and thus a more stable place for the University to develop.

Student numbers increased steadily and by 1970 there were more than 3,000 students. More students meant more staff and a wider range of specialties, which helped to drive the expansion of faculties in the University. The Faculty of Social Services opened in 1967, followed by five more new faculties leading up to 2001. The number of Bachelor degree programmes increased from three in the 1970s to 37 in the 1990s, and postgraduate degree programmes from five to 41 (in 2011 they numbered 33 undergraduate and 109 postgraduate programmes).

A curriculum for a globalized city

The broader range of offerings also reflected the needs of a more complex, sophisticated society. Hong Kong was shifting from a manufacturing centre to a provider of financial and related services, its population was better educated and aspiring to a better standard of living. The city's prosperity and growth was also, once again, becoming tied to its position as a regional centre.

The University began revising its curriculum in 1997 to meet the standards and needs of this evolving, globalized city. Greater emphasis was placed on language enhancement, IT literacy, cultural sensitivity and bridging the arts-science gap. Combined degrees were introduced so students could emerge with more than one skill set. More non-local students were admitted and collaboration was developed with institutions in Mainland China.

These trends have been strengthened and formalized in the new curriculum, which will be fully implemented in 2012. The undergraduate degree for most studies will lengthen from three years to four to give students a broader education that supplements more specialized knowledge studies. The new Common Core Curriculum requires them to look at issues in today's world from multi-disciplinary perspectives, to consider how to tackle ill-defined problems, and to consider their place in a globalized society.

Much as it did in its early days, the University is educating leaders and professionals who can serve both Hong Kong and the region. But this time it is doing so with its roots planted much more firmly in Hong Kong and its sights fully developed to accommodate local, regional and global perspectives.

The first batch of engineering graduates with professors in 1916.

Medical graduates at the Chemistry Building, 1958.

Architecture studio inside Duncan Sloss Building (1950–1980), HKU has provided professional education in architecture since 1950.

Today's HKU students are required to look at issues from multi-disciplinary perspectives . . . and to consider their place in a globalized society.

WOMEN GRADUATES

The first female student was admitted to HKU in 1921, Rachel Irving, and by 1941 about 20 per cent of undergraduates were women. They were enrolled in all faculties, although with a large concentration in Arts. Post-war, many women graduates played prominent roles in Hong Kong government and society, and also in HKU.

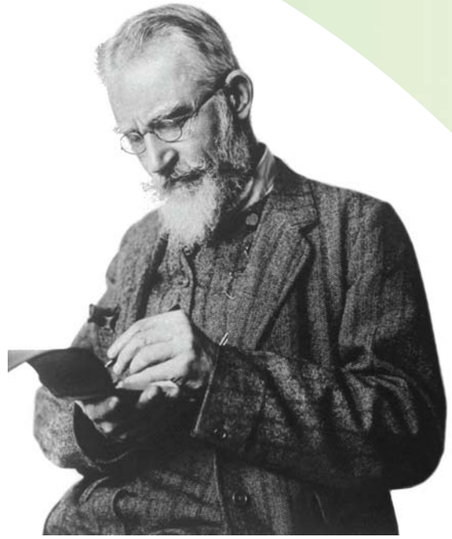
Industrialist Pauline Chan (BA 1940, HonLLD 1985), for instance, became a Court/Council member and benefactor of HKU, while Professor Rosie Young was the first HKU medical graduate to become Dean of the Faculty of Medicine (1983–85).

Women students in 1929.

Professor Rosie T.T. Young

CONTROVERSIAL ADVICE

George Bernard Shaw visited HKU on its 21st anniversary in 1933 and offered students some interesting but inflammatory advice, given the times: "Steep yourselves in all the revolutionary books. Go up to your neck in communism because if you don't begin to be a revolutionist at the age of 20 then at 50 you will be a most impossible old fossil. If you are a red revolutionary at the age of 20 you have some chance of being up to date when you are 40!" ■



George Bernard Shaw

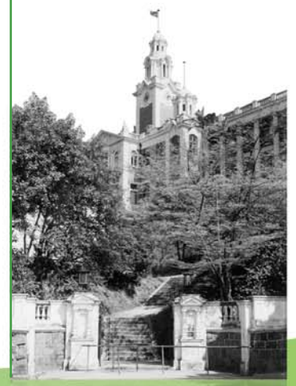
FACULTY EXPANSION

The number of faculties at HKU has grown over the years to meet the professional and infrastructural needs of Hong Kong. Although many of the subjects were taught at HKU from its earliest days, Faculty status provided more solid foundations for expansion and specialization. Some 10 faculties were established over the years:

1912
Faculty of Medicine
Faculty of Engineering

1913
Faculty of Arts

1939
Faculty of Science



1967
Faculty of Social Sciences

1982
Faculty of Dentistry

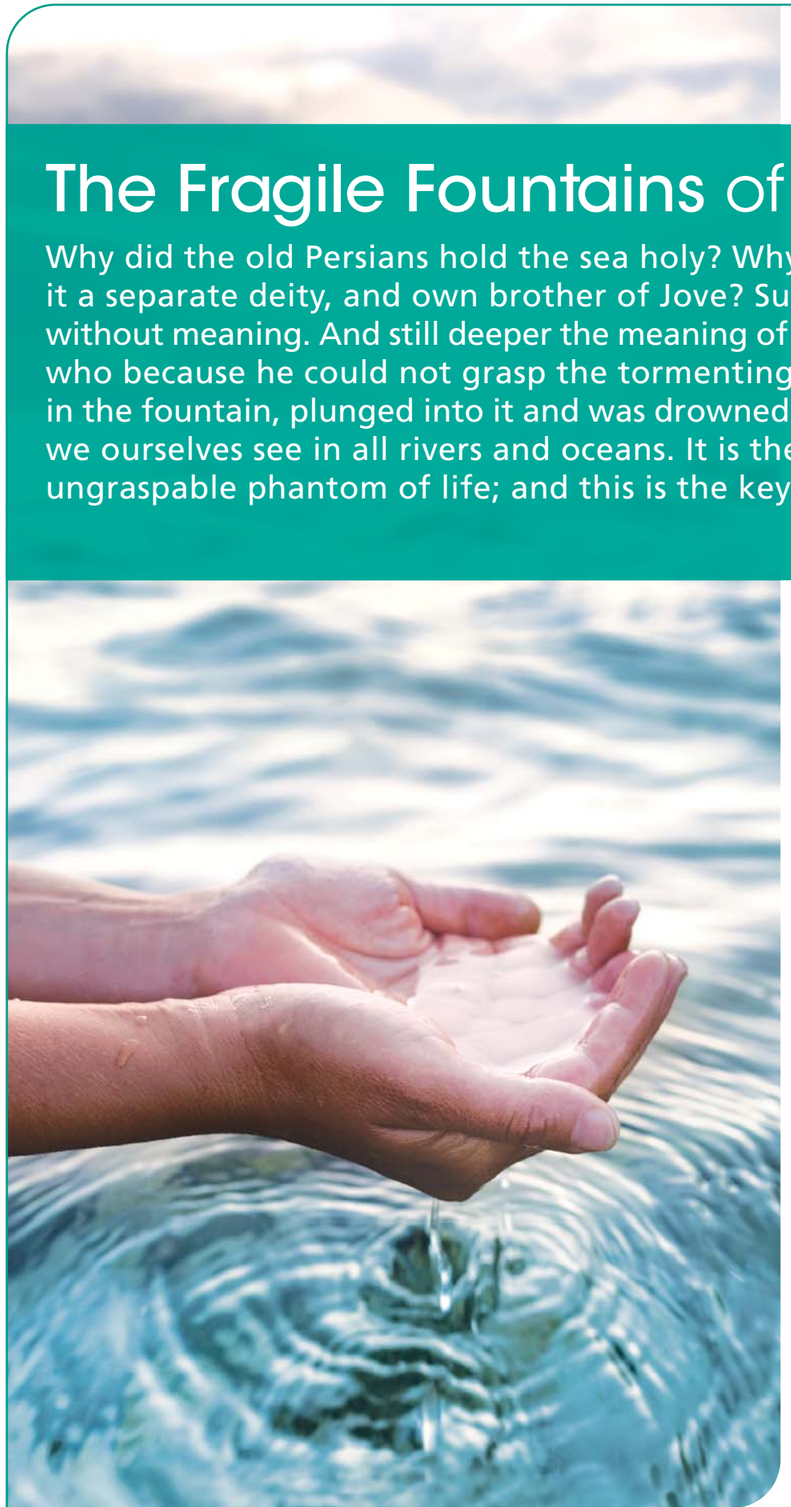
1984
Faculty of Architecture
Faculty of Education
Faculty of Law

2001
Faculty of Business and Economics

The Fragile Fountains of Life

Why did the old Persians hold the sea holy? Why did the Greeks give it a separate deity, and own brother of Jove? Surely all this is not without meaning. And still deeper the meaning of that story of Narcissus, who because he could not grasp the tormenting, mild image he saw in the fountain, plunged into it and was drowned. But that same image, we ourselves see in all rivers and oceans. It is the image of the ungraspable phantom of life; and this is the key to it all.

Herman Melville, Moby-Dick



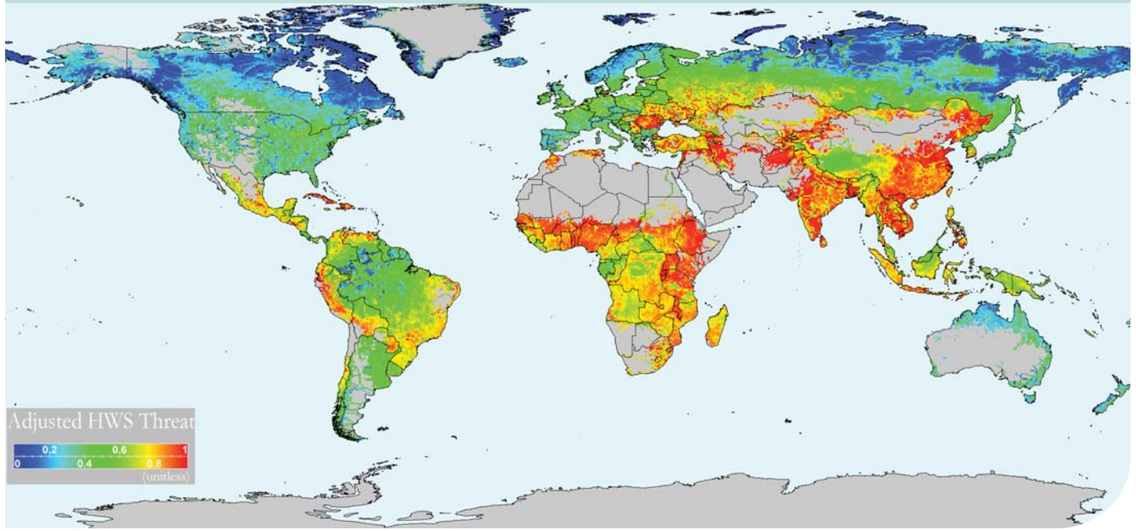
Life sprang from water and water is essential to sustaining that life. Yet all over the world, in fresh waters and the seas, human activity is putting our waters under enormous stress with consequences for people, animals and the environment.

Scientists at HKU are contributing to the global effort to understand the threats and address them. The following pages offer examples of their work – an international map of freshwater degradation; studies on the elusive Chinese white dolphin, the deep sea impacts of climate change, and the perils to the shellfish's ability to form shells; a new tool for measuring water pollution; and an effort to understand and change people's attitudes to the sea.

Uniting these efforts is a commitment by the University to support environmental research. A Strategic Research Theme has been set up on managing water resources and we have an Area of Excellence, the Centre for Marine Environmental Research and Innovative Technology. Many of our scholars in science, engineering and geography are trying to find solutions to the menaces that endanger our waters and the habitats they support. Our common goal is to avert a disastrous fate for this essential fluid.

Fresh Water under Threat

Growing demand for fresh water has put biodiversity and human water security under threat, according to a new global study that maps the extent of the problem.



Map shows global threats to Human Water Security.

The first global survey of the state of freshwater habitats and sources, 'Rivers in Crisis', co-authored by Professor David Dudgeon and 10 other scientists from around the world, has found that rivers serving 80 per cent of the world's population are significantly degraded and biodiversity in 65 per cent of freshwater habitats is at risk.

The researchers have produced maps showing the worst-affected areas are in India, China and sub-Saharan Africa for both human water security and biodiversity. Wealthier regions such as Europe and North America can afford to engineer water security with dams and other measures, but this does not remove the threat to biodiversity.

The threat comes from human activities and the extraction of increasing quantities of water. People are disturbing the watershed by converting it to cropland or covering it with concrete. They are disturbing water flows by building dams and levees and disconnecting rivers from the wetlands. They are polluting fresh waters with waste livestock farms, industry and other sources. And they are overfishing, which is depleting fish populations.

"The first message from our research is the sheer magnitude of the threat to both humans and biodiversity. A few specific things may be unique, like dams which are good for humans and bad for biodiversity, but most of these things affect them both," says Professor Dudgeon, who is Chair Professor of Ecology and Biodiversity.

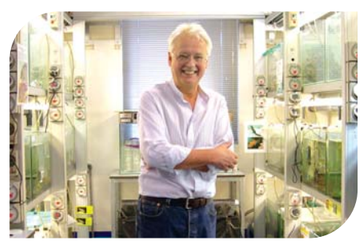
"The developed world has engineered its way out of this problem for human water security by damming and treating the water, but no comparable investment has been made for biodiversity protection."

"It's pretty silly to invest money in solving a problem that you could have avoided creating in the first place."

Better land management, irrigation and conservation efforts could help but unfortunately, water sources are under urgent, growing pressure as human populations increase and people strive for a better quality of life, which usually means using more water for cropland, sanitation and other demands.

Dams are particularly damaging to biodiversity because they change water flows and patterns and affect freshwater habitats. This has a knock-on effect on fisheries because it disrupts the migration patterns of river fish.

Professor Dudgeon cites the looming threats to the Mekong River, which in fisheries terms is the world's most productive river. There are plans to build 11 new dams along its course, which will impact on fishermen and farmers, as well as biodiversity.



Professor David Dudgeon

"For most of these projects, the benefits are felt quite far away in cities and the people on the ground are impacted without consequential benefits," he says.

Professor Dudgeon says governments have moral and practical imperatives for taking urgent action to reduce the threats to the world's fresh water habitats, and implementing integrated water resource management plan that address both biodiversity and human water security.

"On the one hand is the common evolutionary threat and the right to existence. We share the Earth with other species and we are the only ones who can determine their fate, so we have a moral responsibility to do something. I would like to see governments act on this but I am perfectly certain it would hold no water."

"But there are other reasons. If you look at our analysis, it tells you that what is bad for biodiversity is bad for humans: we can't use the water without substantial investment.

"A third reason is that functioning ecosystems actually do good things for us. A functional system has the ability to purify itself so the water requires virtually no treatment. And if you think of wetlands, the vegetation absorbs water and helps to control floods. There is also the benefit from freshwater fisheries, especially in Africa and Southeast Asia."

To add further weight to the evidence, Professor Dudgeon and his colleagues, who had their report published in *Nature* last year, will try next to measure the impacts of the threats. But he warns governments should not wait to act. Discussions to protect the *baiji* (Yangtze River dolphin) in China, for instance, dragged on so long that the animal became extinct. ■

Further information is available at http://www.riverthreat.net/

Climate Change and the Deep Blue Sea

The darkest, deepest depths of the ocean are some of the most remote environments on Earth, but even their ecosystems are not immune to a rapidly changing climate.

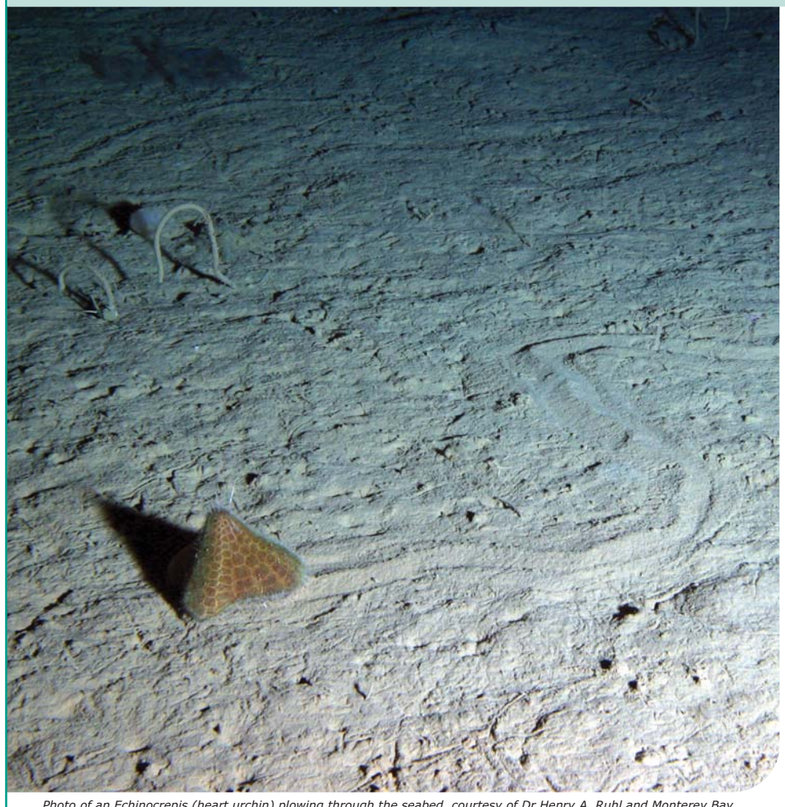


Photo of an Echinocrepis (heart urchin) plowing through the seabed, courtesy of Dr Henry A. Ruhl and Monterey Bay Aquarium Research Institute.

The deep sea may be a place where few can safely venture, but there is growing concern that humans may touch its depths through their contributions to climate change.

Deep-sea biodiversity was previously thought to be stable, but there is now evidence that global cooling and warming may have caused fluctuations in that biodiversity over many thousands of years – challenging the traditional view that the cause was changes in food resources, via the production of plankton. The findings have implications in considering the impacts of climate change today.

A HKU scientist, Dr Moriaki Yasuhara, was part of the team investigating.

"When plankton die off, they fall to the bottom as a marine snow, and this provides food for scavengers and bottom feeders. Deep sea ecologists tend to emphasize surface productivity as the most important factor controlling the deep-sea biodiversity, but very few people have taken into account the temperature at the deep ocean floor as a controlling factor. My research strongly suggests that temperature is also a very important factor, although they are not mutually exclusive," he says.

Dr Moriaki Yasuhara

Number of species varies with temperature

Drawing on North Atlantic fossil records of Ostracoda, a tiny invertebrate, over the past 500,000 years, Dr Yasuhara found that the number of species collected varied according to global climate changes, more specifically to changes in sea floor temperature, so in a warmer period as many as 20 species were collected per 50 individuals and in cooler periods such as ice ages, as few as five.

Deep sea temperatures are stable and vary by only about 5° Celsius across the globe at 3,000 metres, so, "even a change of one or two degrees in sea floor temperature can be very serious for deep sea animals," he says.

The collapse in biodiversity during ice ages happened across latitudes, but the impact was greatest in the tropical regions which have higher diversity. Biodiversity in the arctic regions is typically pretty low so the impacts were not as strong.

"The findings show geographical patterns of tropical-high and polar-low diversity can be changed very dramatically due to climate change, whereas it had been thought the pattern in the deep sea was pretty stable," he says.

Uncertain impact of today's climate change

The instability in species diversity across time and geography in the wake of climate change is potentially important in today's discussions about the subject. However, the outcome of present-day global warming is very difficult to predict.

Dr Yasuhara's research focuses on climate changes during the last tens-to-hundreds of thousands of years in time resolutions as short as 50 years. The warming patterns of today are too rapid to fit into a pattern.

"Fossil records show climate change can affect ecological diversity and deep sea ecosystems quite strongly. Higher temperatures theoretically mean higher species diversity, but the current global warming is too rapid when compared to the records. Whether there will be an increase in species diversity or not is I think an open question. The deep see ecological structure will most likely be disturbed, but we can't really predict what will happen," he says.

He is now trying to expand his research from the deep sea to the global marine environment to understand the fundamental relationship between the ecosystem and climate. ■

How Shellfish Could Become a Long-forgotten Delicacy

Like oysters and mussels? They may soon be wiped off the menu thanks to escalating carbon dioxide emissions.

Hong Kong oyster culture.

The future of the global shellfish industry could be in jeopardy if carbon dioxide (CO_2) emissions are not curtailed.

Research underway in the Swire Institute of Marine Science and School of Biological Sciences suggests that rising CO_2 in coastal waters can have a devastating effect on marine species, particularly shellfish.

Dr V. Thiyagarajan (Rajan), who has been studying Hong Kong's native oyster population, explains that high-CO_2 affects the pH balance of the oceans changing its carbonate chemistry, the process popularly called as ocean acidification.

"Currently there is around 380ppm of CO_2 in the atmosphere," he says. "We expect that to

Hong Kong native oyster species.

double in the next 100 years. The ocean absorbs about 70% of this CO_2. So the majority of it goes into the ocean and coastal waters. In seawater, CO_2 combines to form bicarbonate iron. The higher the CO_2 content the higher the bicarbonate iron. This, in turn, lowers the levels of carbonate iron, without which marine species cannot develop their healthy shells," says Dr Rajan.

A century ago the pH of the seawater stood at 8.2. Now it is 8.1 globally, indicating that the system has already been disturbed. Without intervention the pH is expected to plummet to 7.6 over the next 100 years.

Key ingredients for shells

"This means the carbonate will be reduced 300-fold. And without sufficient carbonate the majority of shellfish are unable to make their shells. This will affect the abundance of shellfish in the sea and also the shellfish industry. If we lose these shellfish it will have a huge impact because they are part of our coastal fishery resources and they play a key role in maintaining the coastal eco-system."

Dr Rajan is studying the larvae of the edible oyster species to see how well they perform under different emerging stress conditions including ocean acidifcation.

"We have been experiencing three emerging environmental stressors," he says. "One is the CO_2, if you raise it, it changes the carbonate chemistry as we've just discussed; on top that in Hong Kong we are expecting heavy rain in the next 100 years because of global climate change. The southern part of China will get a lot of heavy rainfall, then the amount of fresh water flowing down from the Pearl River will reduce the salinity. So we will have high-CO_2, low salinity and high temperatures. We are mimicking these conditions in the lab and exposing the larvae to them."

What he has found is that when the carbonate level drops the larvae try to increase the pH level in the vicinity.

"Although they are tiny they have the mechanism to do this," he says. "This is how they have survived for millions of years. So they are trying to adapt to their environment and they have been doing that very well so far. But we are putting them under pressure and seeing how much they can tolerate. Externally they change and we are looking at how much they can change and whether they can achieve it or not, while internally we see three things happening. Firstly, making the shell is a problem, if they can't make the shell they can't go to the next stage. Predators will catch them. Secondly, the shell's mechanical properties, the hardness of the shell, is governed by unique shell-making proteins but they are unable to synthesise these specialized proteins anymore because they are under stress. Thirdly, if they have a more fragile shell what will happen to them, will they reach maturity and if they do how long can they sustain life?" Dr Rajan's large-scale and long-term controlled experiment in a commercial hatchery setting showed that larval shell growth rate is significantly reduced at projected carbonate chemistry scenarios in 2100 in the oyster species. This industry supports the livelihoods of millions of people in South China.

The death of a delicacy

Dr Rajan expects the early life stages of oysters, green mussel and sea snails to be the most affected by changes in ocean acidification because low-pH water is highly corrosive to their fragile shells made of aragonite.

"What's happening now in the southern coastal waters, like the Polar waters, is that species that use aragonite to make their shells are going to be severely affected. So no more New Zealand mussels and oysters . Scientists are expecting very dramatic problems in the next 50 years. In Hong Kong we are quite safe at the moment because our pH balance is not being affected that much because our warmer sub-tropical waters means the CO_2 is dissipated faster. But it will get worse unless we do something about it."

With a grant of $4 million from the UGC, RGC and HKU he is working with oyster farmers in Lau Fu Shan village, a traditional oyster village, to see how resilient the native Hong Kong species is.

"Internationally this is a huge topic and billions of dollars are being ploughed into this type of research, but I am the only one conducting it in Hong Kong. This is a very, very serious problem in coastal ecosystems."

But it's not all bad news. Dr Rajan says there are ways to solve the problem. "Coastal habitats such as wetlands soak up CO_2 from the atmosphere and bury it in the sediment. If we manage our coastal habitats and wetlands, for example, if we have one wetland for every power plant then we can manage CO_2 emissions.

"Alternatively, many plant species (sea grass, phytoplankton and sea weeds) in coastal waters absorb CO_2. If we increase the number of plants then it's possible that they will absorb more CO_2 and thus stabilize the reaction. So there are scientific solutions." ■

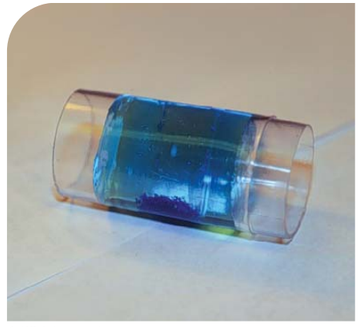
Improving on Mother Nature

A new artificial mussel is proving better than the real thing in monitoring marine pollution.

Professor Rudolf Wu and his artificial mussel.

For decades scientists have turned to live mussels to monitor levels of heavy metals in seawater.

The shellfish, however, are not reliable indicators of changing pollution levels. But an artificial mussel, developed by Professor Rudolf Wu, Director of the Centre for Environmental Research and Innovative Technology, at HKU, is proving more than capable of fulfilling the task.



Artificial mussel.

The chemical sampling device, or artificial mussel, is a Perspex tube that houses a metal binder that can be lowered into marine waters to provide a time-integrated estimate on metal concentration.

It has proven so successful that Professor Wu is now working with partners worldwide to monitor marine pollution.

"This is global," says Professor Wu. "We test the artificial mussel in the laboratory and in the field and we are collaborating with a number of countries including South Africa, Australia, USA, Brazil, Iceland, Portugal, Morocco, Mainland China and England. We send them the device and they put it side by side with the actual mussels."

Unreliable readings

There are several ways of testing water for pollutants but many of them give unreliable readings.

"We all agree that heavy metals are toxic and that we need to monitor them to see if the water in Victoria Harbour, for example, is getting worse or better," explains Professor Wu. "But the problem is that when you measure pollutants in water the levels never stay the same, because the water is affected by so many different factors."

"You can actually receive a different answer every time you test it. So you have to take a lot of samples, you may have to take samples five times a week which is not practical and very expensive."

"People have tried using sediment samples instead, but sand does not retain metals so well. So there's difficulty in comparing one site with another, say comparing Victoria Harbour with Lantau Island, because the sediment is different."

"This is why in the 1970s the United States introduced the Global Mussel Watch Programme. Mussels can concentrate the heavy metals in water by a million times. So you can use mussels to test the concentration. But they are sensitive to temperature, salinity, and pollution levels. For example, if you put the mussels in Victoria Harbour they will die from or be affected by the pollution."

"The results also depend on what food the mussels eat and what part of their cycle they are in, so the whole process is extremely messy and subject to unreliable results."

A standard tool

And, as if this was not enough, mussel varieties differ from area to area. New Zealand mussels, for example, are very different to Hong Kong mussels, which are very different again to California mussels, and they all take up heavy metals at a different rate.

"In the US programme, which they have run for 30 years, they have to use 25 different species of mussel, but have found it difficult to make comparison" says Professor Wu.

But the beauty of the artificial mussel is that it is a standard tool that can monitor heavy metals in almost all aquatic environments including rivers,

estuaries, waste water, recycled water, ground water and seawater. It can even be used in areas where live mussels are not available.

"The artificial mussels are not affected by temperature, they don't grow and they don't feed. Furthermore, this is the first time we have been able to provide data for accurate world-wide comparison. We have run workshop on how to use this device for 11 countries in the Pacific region. The International Atomic Energy Agency commissioned us to run a workshop in Vienna last year to show people from eight countries how this system works."

Testing China's waters

"China supplies 50 per cent of the world's aquaculture products. But in 2007 it received 315 entry refusals from the US coastguard for these products, because they were not up to standard."

"What we want to do is help China test their waters. Water pollution in China is a big issue. The drinking water of over 100 million people is contaminated with animal waste, there are estimated to be 60,000 premature deaths every year, most of the shellfish in coastal areas contains unacceptable levels of toxic chemicals and pathogens. There are numerous outbreaks of epidemic disease, high chemical rates, high levels of liver and stomach cancer, all related to water consumption.

"All this affects China's GDP, so it causes a big economic loss. The government takes it very seriously so we are trying to look at the system and trying to identify the source and the distribution – where do these pollutants come from, where do they go? In some case, when a pollutant enters the environment it can change from something less toxic into something very toxic."

To gain answers Professor Wu is using the small Medaka fish to test for endocrine-disrupting chemicals, toxic chemicals and carcinogens in the environment.

"What we want to do is some forecasting before the damage occurs. Then I can tell you whether or not a particular fish is suitable for eating. You need a very quick, reliable method of detecting the toxins or pollutant level in seafood. At the moment the technology is not there, so that's why we are trying to look at whether gene, protein and metabolite changes in the fish, can be related to pollutants. Based on these fundamental studies, we can develop a biomarker. What we hope to achieve is high impact research that makes a real difference in environmental management in the years to come." ■

The Ripple Effect

The Chinese White Dolphin is a highly evolved mammal, but is its way of life viable within the changing environment of the Pearl River Estuary?

Dr Leszek Karczmarski joined HKU's Swire Institute of Marine Science (SWIMS) in August 2009 to set up a research program into cetacean ecology and conservation. He is currently helming a research project investigating ecology, population structure and socio-behavioural dynamics of Chinese White Dolphins *(Sousa chinensis)* across the Pearl River Estuary.

Studies of Chinese White Dolphins (CWD), or Indo-Pacific Humpback Dolphins, as they are known in scientific literature, have been limited, partly because it is such an elusive species and not easy to investigate with traditional observational techniques. Dr Karczmarski and his team conduct their research by tracking them from the shore using sophisticated optical instruments and photographing them from boats using high-speed cameras. They identify individual group members to investigate the behavioural processes that determine their day-to-day life and that ultimately shape the structure of the entire population.

He has set up a field station in Tai O, partly funded by Ocean Park Conservation Foundation (OPCF) and partly by an RGC grant, which he and his team use as a base for their voyages in search of the CWD. Individual dolphins are identified by unique features such as notches and dark dots on their dorsal fins and upper bodies.

Another challenge to research is the behavioural complexity of the CWD. Says Dr Karczmarski, "with these sophisticated mammals you're not just looking at the basic survival instincts of food, shelter, mate; you're looking at an interwoven and intelligent society." Dolphins cannot survive without their social environment – particularly off-shore, where a single dolphin often means a dead dolphin. Cooperation is key to their survival.

Conservation ecology

"Their way of life determines the viability of their population and their future," says Dr Karczmarski. "Jointly with a Taiwanese colleague, Dr Huang Shiang-lin, and researchers from Zhuhai, we have determined that the current conservation status of CWD in the Pearl River Estuary is far worse than previously thought."

They estimate that the population is declining by 2.45 per cent annually; if this rate of decline remains constant, about 76 per cent of the current population will be lost in the lifespan of three generations, which is less than 60 years.

"This should be a very serious concern," he says. "Clearly, the current management practices do not provide a meaningful tool for conservation. Our estimates suggest that having this declining trend detected by periodical surveys as currently conducted by Hong Kong authorities, would take one to three generations (depending on the CV of abundance estimate) by which time a substantial part of the population might have already been lost."

"Most evidently, revision of the current management strategy is urgently needed, both in Hong Kong and Mainland China. Dr Huang, who is a collaborator and was a senior author on this project will soon join us as post-doc at SWIMS to jointly take this research further."

Establishing regional hub

Collaboration is vital to comparative studies and Dr Karczmarski's long-term goal is for Hong Kong to become a regional hub for marine mammal research. "It was the idea of establishing a regional hub for research of an international significance that attracted me to Hong Kong in the first place," he says. "The Asia-Pacific Cetacean Research Centre would be an initiative that could instigate and integrate research and marine mammal conservation in this little known bio-region."

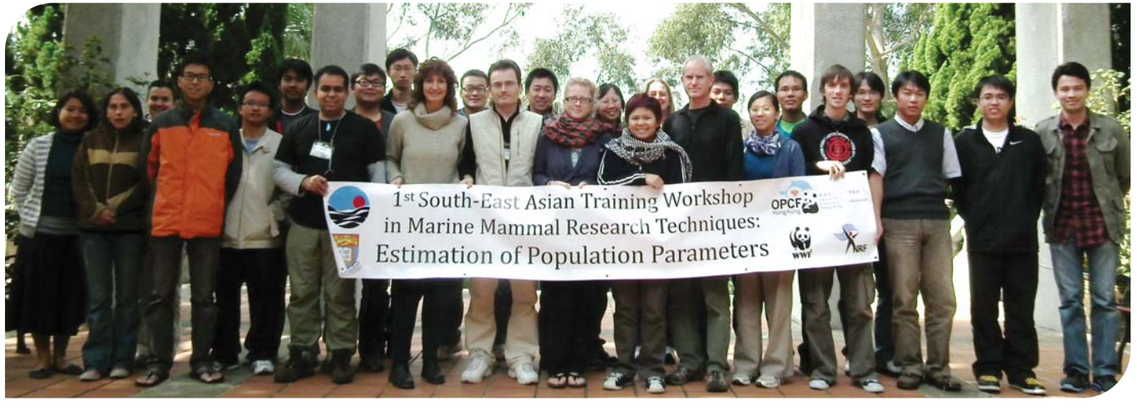
"If you look at Southeast Asia, outside of New Zealand, Australia and Japan, there is very little in a form of comprehensive cetacean research; there are several small projects out there, but most of them are relatively basic. Yet the region has enormous potential. It's both challenging and fascinating."

Dr Karczmarski already has a well-established collaboration with Sun Yat Sen University in Zhuhai and National Taiwan University in Taipei, in both of which he co-supervises postgraduate students. "We are building one coherent dataset that stretches across the Pearl River Estuary and beyond," he says. "The involvement of Ocean Park Conservation Foundation was particularly helpful in facilitating this valuable initiative."

He is now looking to set up links with established institutions in Japan, Australia and New Zealand and then integrate local players in Southeast Asia such as in Thailand, Malaysia, Indonesia and western Pacific island states. The process has already begun with the launch of a series of workshops, partly funded by OPCF, aimed at promoting and standardizing quantitative research techniques across Southeast Asia. The first was a networking event in mid-2010 set up jointly with Professor Zhou Kaiya from Nanjing Normal University and there have been two research workshops in Hong Kong since.

"At the moment standards of expertise vary and research techniques are too disparate," says Dr Karczmarski. "I hope to standardize techniques, so that we are all talking the same language in terms of science. This will facilitate networking and knowledge exchange."

HKU has high expertise in this area and some of his postgraduate students conduct their research in exotic distant locations such as Costa Rica, Egypt and South Africa. "By the time HKU students graduate they will already have established a professional global network which will be invaluable to their future research career and will make comparative ecological research easier and more effective," he says. ■



Save the Fishes

Hong Kong is a centre in the global reef fish trade, which is endangering the survival of certain species. But what do Hong Kong people think of marine life and the oceans that support them? Professor Yvonne Sadovy and her collaborators have been finding out.

Hong Kong's history and geography are intertwined with the sea yet there is a lack of awareness of how we can protect this precious resource.

A survey led by Professor Yvonne Sadovy of the School of Biological Sciences, executed by the HKU Public Opinion Programme and funded by skin-care company La Mer, found people valued the sea, but did not realize that their consumption of seafood was putting fish populations at risk and that overfishing was a major problem.

On the positive side, 82 per cent of 1,000 respondents thought it was important to maintain oceans in a healthy state, either as a food source and/or for; ecosystem interconnectedness".

"There was a sense that through the ocean, we are connected to other parts of the world either directly or indirectly. I was surprised because this is a quite abstract thought," she says.

But people's awareness of the fish trade was less encouraging. Some 40 per cent of the 1,000 respondents thought of the oceans as an unlimited supply of seafood, a concept that has become outdated in many developed societies.

"There is a global crisis in fisheries which is especially severe in Southeast Asia, so this response is something we have to work on," Professor Sadovy says.

People's impacts on marine life

One of the problems is that people do not see their impacts on marine life.

"You go into the supermarket or the wet market and you see fish all the time. How can you know where the fish come from? It's hard to label fish. But if you see that fish appear to be abundant in the market, there is no indication of a crisis. It is a matter of perception and a lack of understanding."

"What we're observing globally is that species composition [in markets] is changing and that fish are generally sold at smaller sizes than in the past. But this can't go on forever. We already import from about two-thirds of all countries on the planet to keep up with demand. It's not sustainable."

Some organizations, such as the World Wide Fund for Nature (WWF), have produced guides on sustainable sources of fish and Professor Sadovy, who likes to eat fish herself, says consumers need to be more aware of this information. "To address concerns about threats against the ocean, all members of the public need to act, for example by following consumer guides on better choices for seafood. We have options. There is no need to eat threatened species, for example."

Actions to protect food fish

Her own research has contributed to the knowledge behind such guides. She was instrumental in helping to get the Napoleon / humphead wrasse fish listed under CITES – the first commercial marine food fish to be offered an international level of protection that aims at sustainable trade of the species.

She has also set up a website to raise understanding and awareness about species like groupers, an important food fish for Hong Kong that gathers on reefs in 'aggregations' for spawning. These gatherings are predictable and massive and make them easy pickings for fishermen, but deplete the groupers' numbers.

While her chief goal is to apply rigorous research and scientific methods to conservation, the success of this requires education and outreach.

Students from her department are graduating into jobs in NGOs, government and teaching and helping to bring the message out. Public awareness efforts, which she has been involved in with WWF and Ocean Park and now La Mer, are also paying off.

A desire to do more

The survey found people want more education about oceans and marine life, not only for oceans but for themselves and their children. Half of those who said they would like to do something to protect the ocean (90 per cent of respondents) did not know what they could do.

"People are getting interested and they're more willing to act, but they need to be shown what they can do. They need to understand they are part of the solution," she says.

By getting more information out about threatened species and oceans, the options will become clearer. ■

For more information, see the websites on brown grouper: http://www.scrfa.org and WWF's Sustainable Seafood Initiative: http://apps.wwf.org.hk/seafood/eng/

Sleeping with the **Enemy?**

Women spies have been vilified and celebrated down the ages. Now they're under the microscope again.

From Mata Hari to Yoshiko Kawashima the idea of the sexy female spy has enthralled the perpetrators and purveyors of popular culture. We may believe we live in more sophisticated times but women spies are still viewed as dangerous femme fatales, as witnessed by the recent furore over the exposed Russian informant, Anna Chapman.

No less controversial is the role such women played in China's 20th century history.

Foremost amongst them is Yoshiko Kawashima, the Japanese/Manchu princess whose extraordinary life and exploits have been popularized in film and books, and Zheng Pingru, said to be the inspiration behind Eileen Chang's novel, *Lust Caution*.

Now the female spy has moved beyond the popular imagination and into the realms of academia as the subject of new research being conducted in the School of Modern Languages and Cultures (Modern China Studies).

Professor Louise Edwards' interest was piqued when glancing through a women's journal from the 1940s.

The beds of the enemy

"In 1940s China the Communist Party published a journal called *Women of China* from its base in Yan'an," she explains. "At that point women Party members were actively critiquing party operations with one article headlined 'Our Place is at the Frontlines of the Battle not in the Beds of the Enemies.' The complaint was that when young women joined up for the war effort they were frequently encouraged to go into espionage. The article complained that women were being used and abused not only by the Communists but also the Nationalists. They said women wanted to carry a gun and kill, not just trade sex for information."

"I thought it was amazing that someone would actually talk about this so openly. There was a follow-up article which continued in a similar vein saying women couldn't join the military if they were married or had children and that this was discriminatory in terms of employment. The reason for this was because there was little use for women beyond spying, and if they were married, or had kids, then that would cause problems because they 'belonged' to another man."

"The author of that particular article pointed out that women were giving themselves abortions, hiding marriages and pretending that they didn't have kids to join up and that this was a health issue as well as a women's issue."

"That got me thinking about what happened to these women after the war, after 1949." However, information on female spies is scant."

"It appears to have been completely denied as a history."

A fictional insight

Professor Edwards has recently completed an article, forthcoming in the journal *China Quarterly* which considers a fictional short story *When I was in Xia Village*, written by Ding Ling in 1941. It provides an insight into the lives of the Mainland's female spies.

"The story is about a young woman who is used as a sex spy by the Communists and is later disdained for this role when she returns to her own village. I looked at the ways in which the story has been interpreted and reinterpreted in the last seventy years."

"In 1956 people were saying there's no way this character could have been a sex spy, our Communist Party would never have used women this way, they had legitimate means without having to resort to such underhand methods."

"In 2003 the story was adapted into a movie where the character blows herself up with a grenade in the Japanese 'comfort' camps. So she has become a chastity martyr in the old Qing Dynasty style."

"It's all about tracing how people have managed the idea that their glorious government has actively made use of these women in these roles. They go from denying, to trying to explain it, and even treat the character as if she were a real person saying that the author has misrepresented her – as though the fictional character actually existed."

Lust Caution Confusion

A similar confusion surrounds Ang Lee's film, *Lust Caution*. The main female character is a spy for the Nationalist Party who, at the end of the movie, falls in love the man she's supposed to be entrapping and so betrays the Chinese forces.

"Some Mainland critics confused reality with fiction. They said you are talking about Zheng Pingru (an actual Nationalist Party intelligence agent during World War II), and you've slandered her name by saying she was a sex spy."

"They get the reality and the representation confused constantly. They accused Eileen Chang of also misrepresenting this character."

"So there's concern about sex spies and I wanted to look at why it causes such anxiety when everyone knows it goes on. How do governments cope with the fact that they are trying to establish themselves as a legitimate moral force, claiming they have the right to rule because they have good morals but are then using underhand methods that most people associate with the enemy, not with themselves."

Professor Edwards intends to continue researching Zheng Pingru and Yoshiko Kawashima – who famously kept a private army and frequently passed herself off as a man.

"Pingru is mixed Japanese/Chinese parentage and Yoshiko was adopted Japanese so I'm interested in the question of split loyalties, the idea of treachery and race and sexual orientation, and where the loyalties lie. Because a lot of the sex spies seem to have the problem that nobody trusts them. If you're having sex with the enemy can you really be trusted with your task because maybe you'll fall in love like the *Lust Caution* character and then who do you really belong to?" ■

Ding Ling, who wrote a short story about the lives of the Mainland's female spies in 1941.

A statue of Zheng Pingru in Shanghai.

New Diseases in an Old Country

China's new prosperity is leading to a diagnosis of previously unrecognized diseases.

The genetic diagnosis of a whole host of Primary Immunodeficiency Diseases (PIDs) is bringing relief to thousands of children and their families.

Although not strictly 'new' diseases PIDs are often categorized as such because they have only recently been identified and new ones are emerging every year.

But thanks to advances in genetics the causes of many of these diseases can now be pinpointed allowing the adoption of a fresh strategy in their management or treatment.

Leading the way in this genetic diagnosis is Professor Lau Yu-lung, Doris Zimmern Professor in Community Child Health and Head of the Department of Paediatrics and Adolescent Medicine in the Li Ka Shing Faculty of Medicine.

He says many of these children are born with a defective immune system. "Over the last 20 years a lot of the genetic causes have been discovered and now it's very important to make a very precise genetic diagnosis because that will have an impact on how we manage and treat the patient."

"There are over 150 such genetic forms so it's not easy for any one unit or hospital, or even one city like Hong Kong, to do it alone."

A strong network

In view of this Professor Lau has established a network that tries to promote an accurate genetic diagnosis for this group of children. Following an e-consultation with paediatricians from around the region who are caring for children with recurring infections, he offers them free genetic testing which is supported in part by the Society for the Relief of Disabled Children.

"In the last few years I have had a number of consultations from about 40 units, dotted around Mainland China, Taiwan, Malaysia,

Professor Lau Yu-lung

Singapore, the Philippines, Australia, and even South Africa. These doctors send me e-mails to discuss their patients. Then they fill in the request form and send us a DNA sample. We analyse it and send them the results.

"This has a big impact on how the patient is able to manage. This is not science in the sense of discovering new things but it is very important in that it brings new hope to these children who are not really being looked after as well as they should be, or as well as they would be in Europe where they have a very good network."

Professor Lau started the PID service in 1988 after returning from the UK and over the last 23 years has gradually built up a core group of members who are interested in these types of illness.

"Twenty three years is not a short time," he says. "So there has been enormous scientific progress – over 50 genes can now be tested in our Department of Paediatrics and Adolescent Medicine."

Tests for families

He offers the test not only to the patients but to their families as well so they can establish whether they are carriers of the genes or whether their next pregnancy might be affected.

"There are very severe and less severe types of PIDs," he explains. "Some are so severe that the child might die in the first year or two unless they have a bone marrow or stem cell transplant. Some will remain at a very low level of quality of life with repeated infections, some might develop malignancies or rheumatological problems, and severe allergies. Many may die in the first ten or twenty years of life. Those that do grow up may not be very well, they may be handicapped."

It is estimated that 3,000 children are born with PIDs in China while in Hong Kong the figure is around 20.

"It is only with a correct diagnosis that the latest treatment can be offered. In the past in Mainland China these children would die, but now that China is getting richer and the parents have only one child they can afford to seek definitive diagnosis and the best treatment for that child."

Accurate diagnosis

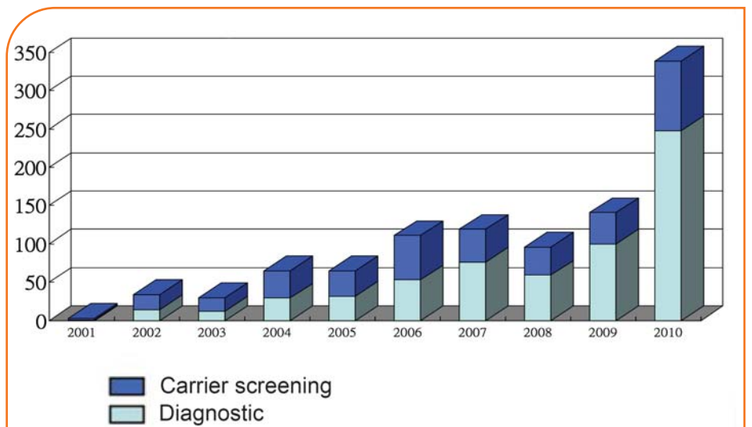
However, establishing an accurate diagnosis is often difficult, and this is where DNA testing is vital. "China is old, and these diseases are considered new because many of them are only now coming to light, or only now receiving an accurate diagnosis. So in a sense they are new diseases in an old country."

"It's also a new disease in the sense that scientists keep adding more to the list every year, new diseases are defined annually. Lately we have embarked on a quest to find new PIDs by whole exome sequencing.

"In the past in China many of these children would have died from pneumonia, malnutrition or diarrhoea. It's important to have a name and it is my belief is that you *must* have an accurate diagnosis because then no-one can shun the responsibility of offering the best treatment to these children."

"If they get adequate treatment they can grow up to go to university but without adequate treatment they will suffer complications such as arthritis and die a horrible death."

For Professor Lau it all comes back to social responsibility. "It's also about what a university should strive to become," he says. ■



Number of genetic tests done for confirmation of diagnosis and carrier testing, 2001 – 2010.

Fighting Cancer at Stem Cell Level

A mushroom compound previously thought to boost the immune system is proving very effective at suppressing prostate cancer stem cells.

“Our big breakthrough was the discovery that PSP actually suppresses the cancerous stem cells which initiate cancer and cause the disease to progress.”

Scientists at HKU and the Queensland University of Technology have made a major discovery that could lead to more effective treatment of prostate cancer, the second most frequently diagnosed cancer of men, with around 900,000 new cases worldwide a year.

A compound prevalent in the Yunzhi, or Turkey Tail, mushroom, has been found to be 100 per cent effective in suppressing prostate tumour development in mice. The compound, polysaccharopeptide (PSP) targets prostate cancer stem cells and suppresses tumour formation.

Dr Terence Lee Kin-wah from Faculty of Medicine has been working on the research trials in collaboration with Dr Patrick Ling, formerly of HKU and now at the Australian Prostate Cancer Research Centre-Queensland and Institute of Health and Biomedical Innovation (IHBI) at the Queensland University of Technology.

During the research trial, transgenic mice that developed prostate tumours were fed PSP for 20 weeks. No tumours were found in any of the mice fed PSP, while mice not given the compound developed prostate tumours.

Vital link

Says Dr Lee, "It was Dr Ling who first made the link between Yunzhi – which has been used in China as an alternative medicine for years – and the suppression of growth of Cancer Stem Cells (CSCs). PSP decreases the population of the CSC markers including CD133 and CD44, which are the source of tumour development."

"There had been many studies and experiments with Yunzhi before, but they concentrated on its efficacy in increasing immunity in the body – in other words, its therapeutic properties for enhancing the body's resistance. Our big breakthrough was the discovery that PSP actually suppresses the cancerous stem cells which initiate cancer and cause the disease to progress."

He says that other inhibitors tested in research trials have proven 70 per cent effective, but in the tests on mice the mushroom compound was proving 100 per cent effective in preventing tumour development.

Cancer initiation

The findings are significant because recent evidence has suggested that prostate CSCs are responsible for cancer initiation as well as disease progression. Conventional therapies are only effective in targeting the more differentiated cancer cells and spare the CSCs.

In Hong Kong, the incidence of prostate cancer has increased at the fastest rate among all cancers affecting men. The number of in-patient discharges and deaths due to prostate cancer, has continued to rise gradually in recent years. Reasons for the increase are put down to diet – particularly increased consumption of 'Western' foods such as red meat.

In 2009, 4,500 in-patient discharges and deaths were related to prostate cancer, accounting for 3.2 per cent of hospitalization due to all types of cancers. Prostate cancer was the fifth leading cause of cancer death in males in 2009 with 306 people dying from the disease.

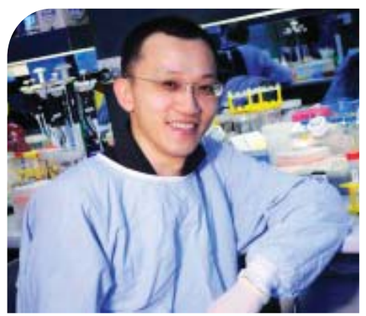
Tumour relapse

At the moment prostate cancer is treated by surgical removal of the tumour, then hormonal therapy which is very effective if the cancer is discovered early. However after two or three years, the tumour can stop responding to chemotherapy and the patient suffers tumour relapse, which is often fatal.

Dr Ling's research is now moving in two main directions. He is conducting experiments to see if Yunzhi can inhibit CSCs in other types of cancer such as liver and breast. They are also examining combinations of Yunzhi and other chemicals for treatment of prostate cancer.

"At the moment, the experiments are still on mice," says Dr Lee, "but if findings are good clinical trials on humans will follow in Australia."

"CSCs are the source of tumour recurrence, and they are more resistant to chemotherapy. This is where we hope Yunzhi will be effective. If all goes well, we would expect to use Yunzhi alongside chemotherapy to treat prostate cancer." ■



Dr Patrick Ling

Dr Terence Lee

Yunzhi

Dr Chow Kam-pui (third from left) and his team.

Taking on the Cyber Criminals

Computer scientists launch new weapon in battle against pirates auctioning fakes online.

As people routinely spend more and more time at their computers, shopping online has become an increasingly popular occupation. But along with the trend has come a rise in the cases of intellectual property (IP) infringement and of the auctioning online of fake designer goods.

HKU's Centre for Information Security and Cryptography (CISC), working hand in hand with the Customs and Excise Department of the HKSAR, has developed a solution to the problem with the Lineament Monitoring System II (LMS II). This new computer system makes it possible to monitor the web 24/7, an ability that previously was simply too costly in terms of manpower.

Dr Chow Kam-pui, Associate Professor of the Department of Computer Science and Associate Director of the Centre for Information Security and Cryptography, explains that the system combines the latest techniques in cyber-criminal profiling, artificial intelligence (AI) and web crawling.

Crawler, analysers, rules

"The Lineament Monitoring System II is divided into three parts," explains Pierre Lai, recent PhD graduate of the Department and part of the team that developed the system. "First the 'Crawler', which collects data from targeted auction sites then performs a semantic analysis of the crawled information. Second the 'Analysers', which further monitor the data before it is analysed by the system's profiling and AI engines. And third, the 'Rules', which are the criteria chosen by a Customs officer – for example he/she might stipulate that the system looks out for a certain model of car being offered within a certain price range. If the specified Rules come up with respect to a certain bid, the LMS II sends an alarm email direct to the officer."

Before the LMS II, monitoring of illegal auctions on the Internet was tedious, inefficient and time-consuming. Customs officers had to sit at a computer screen for hours waiting for something to happen. To make matters worse, the illegal traders had become very good at evading capture. One trick was to set up a sale, then open the bidding for just a few short hours, before agreeing a price and instantly erasing all incriminating evidence.

Under the LMS II, the officers simply choose key words that they want the system to search for – such as sellers, brands and price range – and the system does the monitoring 24 hours a day and stores the resulting information.

"New technology enables the LMS II to assess if the same person may be behind several accounts or transactions. This information is then forwarded to the Customs officers to investigate further."

Profiling ability

Dr Chow explains that a further key feature of the LMS II is its profiling ability. "It makes analysis of different accounts, vendors and goods easy. New technology enables the LMS II to assess if the same person may be behind several accounts or transactions. This information is then forwarded to the Customs officers to investigate further."

In 2010, cases of counterfeit goods being sold online rose 15 per cent on 2009, with 45 cases detected. The counterfeit goods mainly comprised accessories, watches, clothes, leather goods and sunglasses.

Since its launch in January this year, the LMS II, which costs about $300,000, has been used in the investigation of more than 120 cases, of which almost 70 have been resolved. Customs officials say that most of the people involved in this kind of 'peer-to-peer' sale, are employed but on a low salary and are looking to make quick money.

The LMS II marks the second collaboration between HKU's Centre for Information Security and Cryptography and Hong Kong's Customs and Excise Department. The first, back in 2005, resulted in the original Lineament Monitoring System which was developed to track copyright protected materials that are shared online, such as movies and songs.

"Customs and Excise wanted to monitor BitTorrent activities, a technology which enabled anyone to download movies," says Dr Chow. "We developed the LMS to do it automatically after which Customs and Excise successfully arrested the 'Big Crook' who shared three movies using BitTorrent a few years ago. Two years ago, we invited Customs to attend our annual CISC workshop at which we present our latest research and development. Customs showed interest in our technology that monitored Internet auction activities, and started talking about the possibility of developing a system to track the auction of fake goods online – the result was the LMS II."

Asked about the future of the LMS II, Dr Chow says he and his team of four full-time engineers will keep updating and improving it. "In the near future, we will also further cooperate with other Hong Kong law enforcement agencies like the police and the Immigration Department to develop new technologies to help fight cyberspace crime," he adds.

Illicit activity on the Internet is changing constantly as people find ever more ingenious ways to sidestep the law. "Our next system will probably involve finding a way to deal with 'cyber lockers', places where data can be stored without any traceable connection to who put it there . . . for example torrent files that are used by BitTorrent," says Dr Chow. "Moreover, these lockers also allow people to stream media, rather than download it, making their actions very difficult to track. It is likely that the problem of how to deal with cyber lockers and tracing media streaming will be the basis for the Lineament Monitoring System III." ■

Architecture of LMS II

Detecting Early Psychosis

Psychosis is characterized by hallucinations and delusions and much misunderstanding among the public. A five-year project is trying to change things so patients can have hope of a functioning life.

Between 1,000 and 3,000 Hong Kong people are estimated to develop psychosis for the first time each year, and for many the outlook is grim. They are usually diagnosed long after the disease has taken a firm hold, they receive medication but little other support, and they face discrimination and misunderstanding in the community, often with tragic consequences.

Professor Eric Chen of the Department of Psychiatry is leader of the five-year Jockey Club Early Psychosis (JCEP) Project, which received $68 million from the Hong Kong Jockey Club Charities Trust in 2009 to improve the outcome of psychotic patients in collaboration with the Hospital Authority, Caritas Social Services and Mental Health Association of Hong Kong. He has seen how things can go so horribly wrong.

A few years ago he was involved in a case where a teenage girl was identified as psychotic, but her parents refused treatment. They had seen a relative suffer the disease many years before and had clung to an outdated view that treatment was burdensome and had severe side effects. The girl ended up committing suicide.

"From our point of view it was a tragedy, but what really surprised us was the parents' view. They thought it was the best outcome for her. It was really sad, it didn't have to end like that. She could have had a few weeks of treatment and everything could have been different for her," he says.

Changing attitudes

Fear and misunderstanding of the disease are not uncommon and have affected the speed in which patients receive treatment. A survey of 1,000 people conducted by the project in 2009 found many people mixed up psychosis with anxiety and stress, discriminated against patients especially in the workplace, and were mistrustful of them.

"Patients have been at a disadvantage in terms of access to health care. Together with the complexity of the disorder, it's been very challenging to fight for a good outcome," he says.

The project is hoping to change both the perceptions and treatment. It is aimed at adult patients over 25 years old (youths and young adults already receive intervention), since psychosis usually appears for the first time in people aged 15–45.

Publicity and awareness-raising campaigns have been conducted in the media and at district level, targeting friends and family of potential patients and the general public with the message that psychotics suffer delusions and hallucinations, this is a medical condition like any other medical condition, people should seek early assessment, and there are now good medical and psychological treatments that can offer a promising outcome.

Training the front line

People in occupations that are likely to encounter psychotic patients are also being offered training on how to handle them. This includes police officers and social workers, and also teachers and housing estate workers who were initially reluctant to agree to workshops. Two incidents over the past two years convinced them they needed more information – one involving a boy committing suicide at school and the other a psychotic patient who killed a housing estate staff member.

"Our main approach is to reduce the delay in treating psychosis through gatekeepers and more public awareness," Professor Chen says. Over 2,000 participants have joined these workshops in the past two years.

"Once somebody has developed the disorder, the first few years are considered to be particularly important because whatever happens then is likely to have a lasting effect."

Greater support to patients

The patients themselves are being offered psycho-social intervention in addition to medical treatment. About 650 patients in the project will be offered specialized early psychosis case management with Intervention Officers who will follow each case closely and prioritize further action. They will use such approaches as cognitive behaviour and life coaching and work with the patients' psychiatrists to monitor their progress.

Professor Eric Chen

Another 350 patients are being divided into three groups for a research study to determine the impacts of intervention and the costs. One group receives four years of intervention, a second group receives two years and the third group is the control group and receives only the standard medical treatment offered to all patients by the Hospital Authority (the Government recently announced intervention will be made available to all patients, but this will take some time to establish as key workers need to be trained. Staff on the psychosis project are expected to assist in this).

Patient outcome will be measured by their functioning in terms of social, occupational and recreational activities. "More acute psychotic symptoms are relatively easy to control with medication. Over a longer period of time, what makes the difference among patients is the degree of functioning," Professor Chen says.

And also the reactions of others, hence the importance of raising awareness. "What people think of psychosis affects how patients look at themselves, especially as they recover from their condition," he adds. ■

Learning the Birds from the Bees

Ecology and Biodiversity students need to put down their textbooks and go into the field if they really want to know the species they study. Dr Billy Hau has been taking them there and equipping them with skills that travel.

Going to Africa to look at animals in the wild is a dream trip for anyone. But when the trip is mixed with education, it resonates that much deeper.

Ecology and Biodiversity students (photo above) have made annual trips to the African plains over the past three summers to observe animals in their natural environments, develop skills in spotting and recording the species they see, and deepen their appreciation of conservation and the threats to the animals.

The latter was certainly the outcome for Yiu C-wing, a recent BSc graduate whose trip last summer impressed on her the fragility of the animals.

"The national park was like a big national zoo. Whenever a lion or other animal was found, cars would surround it. We saw a family of cheetahs eating at one spot and there were more than 30 cars within 100 or 200 metres of them."

"I was shocked to find tourism can affect animals so much. It's a dilemma that's quite difficult to solve: ecotourism has this impact on nature, but it can also make people more aware of the animals and the threats to them."

That realization has in part motivated her to pursue postgraduate work studying the impact of fisheries and boats on the Chinese white dolphin. It also stands as a testimony to the efforts of her teacher, Assistant Professor Dr Billy Hau.

Yiu C-wing

Tony Hung

Going out into the field

Dr Hau joined HKU 10 years ago and ever since has been working to strengthen students' experiential learning in ecology and biodiversity and prepare them to work in conservation.

"About two-thirds of our students will stay in a field related to conservation when they graduate and they need to be able to tell species apart. You can't just teach them this in a classroom. The most effective way is to throw them into the field and stimulate them to get interested," he says.

He started with a voluntary, non-credit bearing course to train students in the discipline of identifying species in Hong Kong, alternating each year between plants and animals. The course is still offered and students have to attend all classes and field trips, which include meeting at 6am in Sheung Shui to go bird watching.

The success of that course excited students to the possibility of field trips abroad and they asked Dr Hau if this could be done. He was open to the idea – provided the students looked after travel, accommodation and all the other arrangements. The first overseas trip was organized to Hainan in 2005, followed by Thailand in 2008 and, starting in 2009, Africa. Much of the sponsorship for Africa came from the K11 shopping mall operated by New World Development and students also set up a post-trip exhibition at the mall.

More than just wildlife training

"This is not just training on wildlife, it's all-round training. It would be easier if I organized the trip myself, but I want them to own the programme. I supervise them and they organize it. The advantage is if they become teachers or NGO workers, they may be asked to organize such trips and they will have this experience to draw on," he says.

During the trip students are required to record species according to standard ecological survey methods and to keep a nature diary. The days are spent on safari and meeting with conservationists in the field, while at night they compare notes.

It's two weeks of hard work, but it's also effective in motivating students' commitment to conservation. Tony Hung, conservation officer at Mai Po Nature Reserve and HKU graduate, joined the Hainan trip as a student and helped out as a supervisor on last summer's African trip.

Life-changing

"It's a life-changing experience. You get in touch with the environment and the local people and through that you find out what you want to do in this field and with your life. I think going anywhere to experience wildlife is great, even in Hong Kong. It's good to get people to look at the natural environment," he says.

Africa remains an alluring option, though. Dr Hau has noticed a significant increase in Chinese tourists there since he first went to Kenya on his own in 2004 and so he is working on a Chinese-language field guide with his students to raise awareness and get people to think about the status of the animals and their impacts on them. It is a similar goal to the one he has for his students.

"You have to stimulate them to think about conservation, you can't force it. It's almost like church methods – you can't force the belief. They have to develop their own beliefs through their own experiences, and they have to know what it is that they are protecting," he says. ■

Pursuing **Excellence**

The Dean of the Faculty of Business and Economics aims to enhance the university's role in contributing to the economic development of Hong Kong and China.

“I find finance very exciting. It's a combination of logic and human nature. You can't hide in finance – people's personalities always come out – some are greedy, some prudent, others foolish. You need to use money wisely, otherwise you can be controlled by it.”

Professor Eric C. Chang

Hong Kong's position as a leading financial hub is a pivotal part of its worldwide success. As the new Dean of the Faculty of Business and Economics, Professor Eric C. Chang, Quoin Professor in Finance, sees his role as one of pursuing and maintaining excellence in the field of business, economics and finance, so that HKU can continue to impact on the economic development of Hong Kong and Mainland China.

"HKU is fortunate in attracting excellent students," says Professor Chang, "I see my role as ensuring the faculty brings out the full potential of these excellent students. HKU has traditionally made a great contribution to Hong Kong and to China. In the academic sense new ideas and innovations are critical, but we also hope to contribute in a practical way to the economic development of Hong Kong and China, as well as to ensure Hong Kong keeps its leading edge as a financial centre."

Professor Chang, who has been at HKU since 1998, also emphasizes the importance of the university's role in China at this crucial time in Mainland's development. "We have set up an IMBA programme in Shanghai in partnership with Fudan University which now has more than 200 students every year. We have a strong alumni base there now," he says. "Shanghai has the potential to become China's financial centre and we are a part of that."

He feels that while China and Taiwan are producing good scientists and engineers, good business professionals are still in short supply. "China needs to develop better business leaders and managers," he says. "Modern administrative and management ideas have not been fully adopted, so while China's economy is booming in many ways, it needs world-class visionary leaders and executives to rise to the challenges."

During his tenure, he also plans to get community leaders more involved in the faculty. "There are many exciting ways they could associate with us," he says. "Scholarships, internships, meaningful events for instance. They could donate funds to attract international scholars to the faculty. I want to ask them to give their time and/or influence to support educational endeavours."

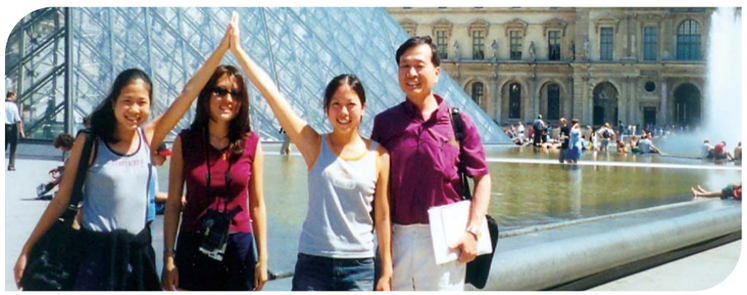
Taiwan origins

Born in Taiwan to parents who, like many others, had fled there from China in 1949, Professor Chang graduated from college and did two years military service, before embarking on an MBA. After just one year though, he decided to move to the US on a scholarship and to switch from his initial interest in civil engineering to management. For his PhD he switched to finance, an area that fascinated him – and still does.

"I find finance very exciting," he says. "It's a combination of logic and human nature. You can't hide in finance – people's personalities always come out – some are greedy, some prudent, others foolish. You need to use money wisely, otherwise you can be controlled by it."

He stayed in the US for 20 years, frequently moving – each of his three daughters was born in a different American city. His achievements there included holding the prestigious position of INVESCO Chair Professor of International Finance at Georgia Institute of Technology and two years in Washington DC at the Commodities Futures Trading Commission of the United States, a regulatory body for futures and derivative securities.

His daughters are still in the US. The eldest Christina is a Chartered Financial Analyst. "I helped her study for her exams," says Professor Chang. "For her Level 2 exams I took a week off and tutored her. We both enjoyed it. I encouraged her to see her strengths and explore her intellectual ability."



As an educator – as well as father – he strongly believes, in helping people realize their full potential. His two younger daughters are also pursuing interesting careers: the middle one, Sarah, did a degree in economics, but then decided her real love was in the medical field, so switched to pharmacy. The youngest Heidi studied bio-medical engineering and is now in her final year at medical school.

Professor Chang and his wife, whom he met in Taiwan when she was doing a degree in chemistry, loved living in the US and had what he describes as 'a comfortable life'. But he found himself increasingly fascinated by the exciting economic developments in Asia. "What was going on over here was very interesting, particularly the rise of China. We decided to return and to make a contribution."

Church Elder

A devoted Christian since the age of 15, Professor Chang's life outside of work and family is devoted to the Hong Kong Mandarin Bible Church, the city's only purely Putonghua-speaking Christian church. He and a few friends are the founding members of the Church, which started in 1995 and is based in North Point. He is now an Elder of the Church, whose congregation now totals 700. "I occasionally preach the service and teach in the Sunday School," says Professor Chang. "But my most important role as an Elder is to set the direction."

Reflecting on his life, Professor Chang says, "I feel very blessed . . . in my family, my Church and my career. Education is an exciting career – you have an impact on people."

Asked what he considers his greatest achievement, he chooses neither career nor Church, but family: "My greatest achievement is that my daughters enjoy talking to me," he says, smiling. "When we get together we talk for hours. I'm very proud of that." ■

The Strong and the Weak in Japanese Literature

Our colleague Mr Fuminobu Murakami, Associate Professor in the Department of Japanese Studies, sadly passed away in June this year after a year-long battle with cancer. Here he talked to the *Bulletin* about his new book *The Strong and the Weak in Japanese Literature: Discrimination, Egalitarianism, Nationalism,* which casts fresh light on an age-old notion.

Oscar Wilde may have been of the view that "Life imitates Art far more than Art imitates Life" but a new book throws light on the question by examining concepts of 'the strong' and 'the weak' in Japanese literature and showing how they reflect certain aspects of society.

By using texts from classical and modern Japanese literature, Fuminobu Murakami, formerly Associate Professor in the Department of Japanese Studies, explores the concept of 'respect for the strong', as a notion of an evolutionary society, and 'sympathy for the weak', as a notion of a non-violent and changeless egalitarian society.

In *The Strong and the Weak in Japanese Literature: Discrimination, Egalitarianism, Nationalism*, Mr Murakami uses the term 'strong' to refer not just to those with strength and power, but also other ideal attributes such as beauty, youth and goodness. "For the strong I mean strong people, strong characters in the novels and also in evolution," he said. "They are associated not only with the power of life, competition, evolution, progress, development, ability, effectiveness, efficiency, individuality, the future, hope and romance, but also with violence, fighting, bullying, discrimination and sacrifice."

Sympathy for the weak

Similarly, the term 'weak' implies not only the weak and infirm, but also the disadvantaged, the indecent, the unsophisticated and those generally shunned by society. "Sympathy for the weak, this is the notion that ideally appears in the non-violent changes in egalitarian society. They invoke notions of peace, egalitarianism, anti-discrimination and welfare, as well as stagnation, retreat, retrogression, degeneration and the decline of vital powers."

"These concepts do not only reflect Japanese society, I think it is a world-wide phenomenon."

To test his hypothesis, Mr Murakami explored Japanese literature stretching as far back as the 10th century *Tale of Genji* and *The Tale of the Heike* compiled in 13–14th centuries, all the way up to 20th century literature.

"During the writing of this book I realized two points. The first one is that respect for the strong is closely related to the respect for endeavour, or hard-working people, while sympathy with the weak is closely related to egalitarianism."

"Secondly, in terms of the transition between the 10th and the 20th century Japanese stories, I found there was a relationship between egalitarianism and nationalism. In a sense this relationship was born together in opposition to the previous despotic, absolute monarchy and feudal society ruled by aristocratic and religious leaders."

Liberated from oppression

"Together, these notions – egalitarian and nationalism – supported the liberation of the common people from the oppression of a small number of high-status people in society. Egalitarianism itself is very different in the 10th century to what it is in the 20th century but, on the other hand, there are similarities between the sympathy for the weak in the 10th century stories and in the modern Japanese novels written by Kawabata Yasunari."

"In this book I focus on how these stories reflect society. I'm looking at them from a cultural viewpoint and these are views that are not limited to Japanese society. European society has Thomas Hobbs and John Locke who advocated egalitarianism. On the other hand they also supported nationalism."

"As the basis of literary analysis, I dealt also with some Japanese philosophers, Buddhist and Confucianist monks and I realized that I needed to divide egalitarianism into two types: the first is the quality of people in nation states which is born of the overthrow of the unequal aristocratic and feudal society of the past. Initially this served to preserve the nation state by fighting against other nation states. This is equality for the sake of the development of the nation state. By that I mean the nation state grants equality to its members who in turn must fight on its behalf."

"The second kind of egalitarianism is the humanistic form of equality based on the assumption that we cannot measure the whole value of any human being. We don't know how much we are able to do something. In Europe the first type of egalitarianism is represented by Hobbs and Locke and the second is represented by Karl Marx and also more recently by the American philosopher John Rawls."

"In Japan we also have some philosophers who supported both kinds of egalitarianism for the nation state from the 8–20th century."

By using the two concepts of the 'weak' and the 'strong' Mr Murakami skilfully weaves a narrative that is part literary criticism, and part social commentary and provides a new insight in the ways in which Art and Life inform each other. ■

Respect for the strong and sympathy for the weak are woven into Japanese society and revealed in its literature.

A New Look at **Hong Kong Films**

When international audiences think of Hong Kong cinema they think mostly of genre films and martial arts movies. But a new book goes a long way towards correcting that misconception by exploring the vast and complex world for Hong Kong film culture.

Hong Kong Screenscapes: From the New Wave to the Digital Frontier, edited by Esther M.K. Cheung and Gina Marchetti of the Department of Comparative Literature, and Tan See-kam of the University of Macau, brings together a series of essays exploring frequently overlooked great films and ground-breaking filmmakers.

The original idea for the book sprang from two HKU seminars – one on the Hong Kong Hollywood connection and alternative cinema, and another devoted to alternative film. Material from both filtered into the book.

"It is very well represented by HKU faculty, not just in our department but elsewhere," says Dr Marchetti. "It showcases that HKU has a lot of people who are very seriously invested in alternative modes of art, filmmaking, new wave connections and other aspects of Hong Kong film culture that people don't generally think about."

"Most of the scholarship on Hong Kong films is about genre and martial arts films but Hong Kong film culture is much more complex, expansive, innovative and aesthetically on the edge than you would think."

The book covers the contributions of Hong Kong New Wave directors such as Wong Kar-wai, Ann Hui and Patrick Tam, as well as independent or experimental filmmakers like Fruit Chan, Tammy Cheung and Evans Chan.

"We have presented our materials with a 'long' historical scope covering earlier veterans of the Hong Kong New Wave as well as emerging artists in recent years. A prominent example would be Ann Hui who traverses between the mainstream and the margin, persisting with her social concerns over the years," adds Dr Esther Cheung.

"When you look at filmmakers like Ann Hui or Patrick Tam, Tsui Hark they have film projects that are not mainstream in any way, shape, or form. So we have those who run the gamut from commercial filmmakers all the way through to festival art films as well as more independent film. We also have quite a lot of essays on documentaries and the essay film. We have an interview with Tammy Cheung, who is one of the foremost independent documentary filmmakers working in Hong Kong right now," says Dr Marchetti.

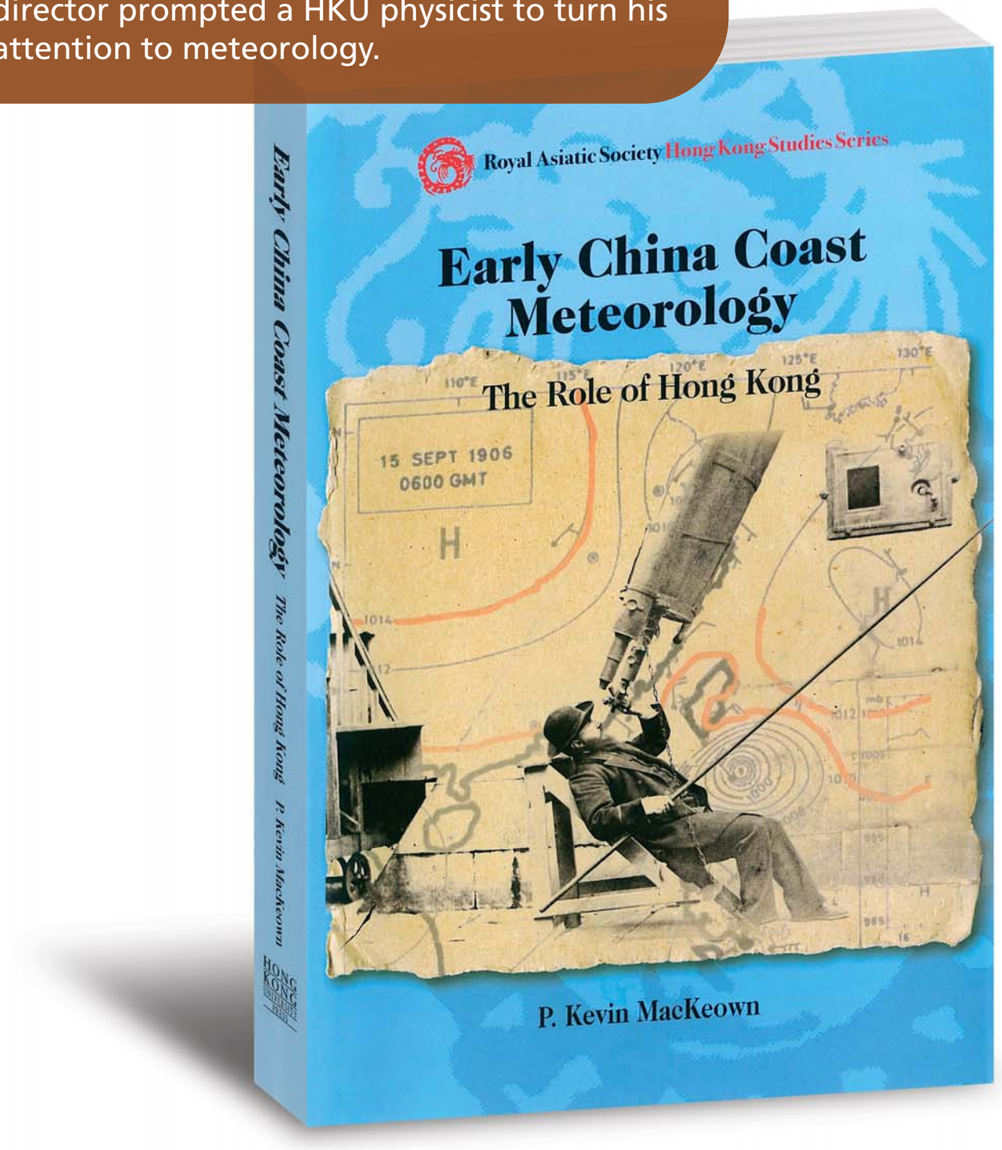
"One of the reasons it's called *Screenscapes*," says Dr Marchetti, "is because of its global connections. Hong Kong is not an insular cinema, it's very much within this global landscape of screen culture, the influence is really due to the fact that Hong Kong is a very cosmopolitan city and the people here tend to have very close connections with the Diaspora and tend to have travelled extensively, and their work is in conversation with these global flows because of their own life experiences."

Dr Cheung adds, "Among the current anthologies on Hong Kong cinema published by the Hong Kong University Press or other presses, our book includes not only critical essays but also interviews, artist statements and conversations. This has provided a very important way of grappling with the production and analysis of independent and alternative films. As you may know, all film productions are collaborative projects but the authorial 'intention' in independent and avant-garde art often plays a unique role in defining the directions of the films. That is the reason why our book features our dialogues with the film artists and conversation among themselves. It blends together objective, critical analysis and views from the 'insiders' and practitioners. This is particularly interesting if you see how some of our interviewers speak about the ways in which they play out what I call the politics of access and recognition in the introduction of the book."

Dr Marchetti commends HKU Press for "not only bringing out this book but also for its commitment to Hong Kong film and to Asian film more generally as well. They really have emerged as the leading Press in publications for Hong Kong cinema and one of the leading Presses for Asian film. I think this leadership role is something that needs to be noted I'm very grateful to the Press for accepting this publication and for seeing how it fills a really huge gap in terms of understanding Hong Kong film as well as understanding Chinese language cinema."

Stormy Weather

Interest in the Hong Kong Observatory's early years under its somewhat cantankerous first director prompted a HKU physicist to turn his attention to meteorology.



There can be few places in the world where people have such a close attachment to their Observatory than in Hong Kong. While overseas, people look to television for their weather news, here we tend to go straight to the source: the Hong Kong Observatory for our daily update on rain warnings, humidity levels and of course the approach of a typhoon.

P. Kevin MacKeown's book *Early China Coast Meteorology: The Role of Hong Kong* is a perceptive account of the Observatory's early years and a fascinating work not only from a meteorological point of view but also as a reflection of early colonial Hong Kong.

Professor MacKeown does not have a background in meteorology – his career has been in physics. Indeed, he set out initially to write a history of physics, but while researching that book came across the interesting character of William Doberck, the first Director of the Hong Kong Observatory, and realized that here was a story to tell.

Doberck helmed the newly set up Hong Kong Observatory for 24 years, from 1883 until 1907. A Danish professor whose real interest lay in astronomy, Doberck's career in Hong Kong – perhaps appropriately considering the job – was stormy.

Few records

"It was as much because of what had not been written about him as what had that interested me," says Professor MacKeown. "He ran the Hong Kong Observatory for 24 years, yet there was very little known about him, very few records. I found that interesting, and the more I researched the more interesting this rather cantankerous character became."

He initially wrote an article on Doberck in 2004, then decided to expand it into the book. It is aimed at people with an interest in Hong Kong's colonial history during its formative years, and in the history of the region. Indeed the book is of far more general interest than the title might suggest.

Born in Copenhagen in 1852, Doberck was awarded a doctorate for his thesis on research into comets in 1873. He then moved to County Sligo in Ireland to work at the Markree Observatory, home of the largest telescope ever made at the time. By the time he was appointed to the role of Director of the fledgling Hong Kong Observatory in 1883, Doberck was an accomplished astronomer with at least 98 publications to his name.

And there's the rub: His main interest was astronomy not meteorology. As he would later point out in his strained exchanges with the HK Governor, no mention was made in the original job description of weather-forecasting. This began his erratic relationship with various governors, in particular Governor Sir Matthew Nathan, as well as with his colleagues, the commercial community and his peers at the Jesuit observatories in Manila and Shanghai, with whom he was instructed to work, but chose to ignore.

"Despite the antagonism between Doberck and the other observatories, they did manage to develop a storm warning system, as well as make valuable strides in the study and forecasting of typhoons," says Professor MacKeown.

Devastating typhoon

Not that the forecasts always came – on the morning of September 18, 1906 Hong Kong was struck with its most devastating typhoon on record. "The first storm warning went up at 8am, but before any evasive action could be taken the storm had swept down on the colony and by 11am it was all over." More than 10,000 people lost their lives, countless ships were destroyed. Governor Nathan called it "a catastrophe as calamitous, if not more, than any which has previously befallen the Colony."

There followed much controversy over whether Zikawei Observatory in Shanghai had warned Hong Kong of the storm's approach, and been ignored. Or whether the typhoon had in fact taken everyone by surprise. Professor MacKeown concludes no warning was given, but that given Doberck's penchant for ignoring Zikawei, speculation was bound to be rife.

"Without Doberck, the observatory's early years would undoubtedly have been very different, and perhaps meteorologically better off – that was not his area of interest," says Professor MacKeown. "On the other hand, he left it a highly professional entity – just not a very user-friendly one. He also stood up for the Observatory over the years, refusing to capitulate to requests for financial cuts."

Researching the book he scoured archives, public records and the Internet. His research also brought up findings of a most unscientific nature, including a possible relationship between Doberck's sister Anna, who worked with him in Hong Kong for many years, and the Governor Nathan. As Professor MacKeown muses, "'Anna and the Governor . . .' but we will forfeit the movie rights and move on."

Historians of science will find much of interest in this colourful work. The early study of typhoons is particularly important, as well as the first attempts at quantitative meteorology. This is also the only written history of the workings of the Zikawei Observatory (now only a library remains) in Shanghai and the Manila Observatory, whose records were largely destroyed at the end of World War II. ■

Early China Coast Meteorology: The Role of Hong Kong is published by Hong Kong Universtiy Press.

"Despite the antagonism between Doberck and the other observatories, they did manage to develop a storm warning system, as well as make valuable strides in the study and forecasting of typhoons."

Professor P. Kevin MacKeown

Guilt, Identity and Ancestor Worship

A pilgrimage to the home village has become a required passage for many overseas Chinese, who want to strengthen their connections to their roots. The recent changes in China have altered the nature and impact of these journeys, as a HKU scholar found.

The Confucian ideal of filial piety requires descendants to tend the graves and honour the spirits of their ancestors. When people are uprooted, as they were in China in the 20th century, they can be prevented from fulfilling their duty.

Dr Khun Eng Kuah-Pearce, Associate Professor of Sociology, has been investigating the role of ancestor worship and other factors in pilgrimages of overseas Chinese to their ancestral villages, and found that the nature of these journeys has changed over the years.

Her research includes interviews with more than 200 people in the 1990s from Singapore and their ancestral village in Fujian, and more recent interviews with a newer generation of pilgrims.

Those of the older generation who came directly from China still call the village home, but that connection is mixed with guilt over their escape to a better life in the 1950s and 1960s.

"First they felt lucky that they got out, then they had a guilty conscience because they felt they couldn't do much for villagers in terms of material well-being and helping them out. There was also a cultural or religious aspect: if you are filial, you don't leave your home, you don't leave your ancestors untended. Their lives contradict filial piety," she says.

After China's open-door policy in 1979, the Singaporeans began to visit their home villages, which were in poor condition. They gave money to help build houses, sometimes to build schools or bridges, and they invested in cottage industries such as small pottery factories.

"One thing that came across clearly is that they were not looking for profit. There were no jobs at the time in rural districts so they felt obligated to create jobs, but they weren't thinking about making money," Dr Kuah-Pearce says.

Ancestor worship was one of the key reasons for their return and they began to reinstate their ancestors to their proper place by rebuilding lineage ancestor houses. These are different from ancestor halls, which have been replicated in other parts of the world, because they can only be built where the ancestor planted their feet on the ground.

This also brought advantages to village communities as some authorities used permission for ancestor worship as a bargaining tool to extract concessions such as new bridges or roads, and local villagers were happy to see the revival of associated festivals.

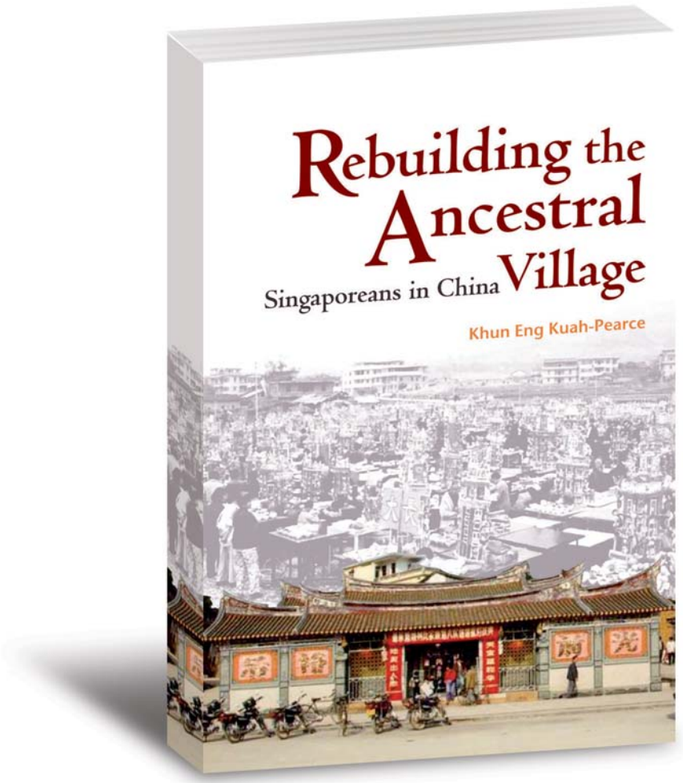
Nonetheless, the return of the overseas Chinese was not without tensions. "The Singaporean Chinese sometimes were not very modest," Dr Kuah-Pearce says. Younger villagers in particular saw them as arrogant and rich, while the Singaporeans thought the villagers were greedy.

Given that, she was curious why subsequent generations of Singaporean Chinese continued to venture back to the villages.

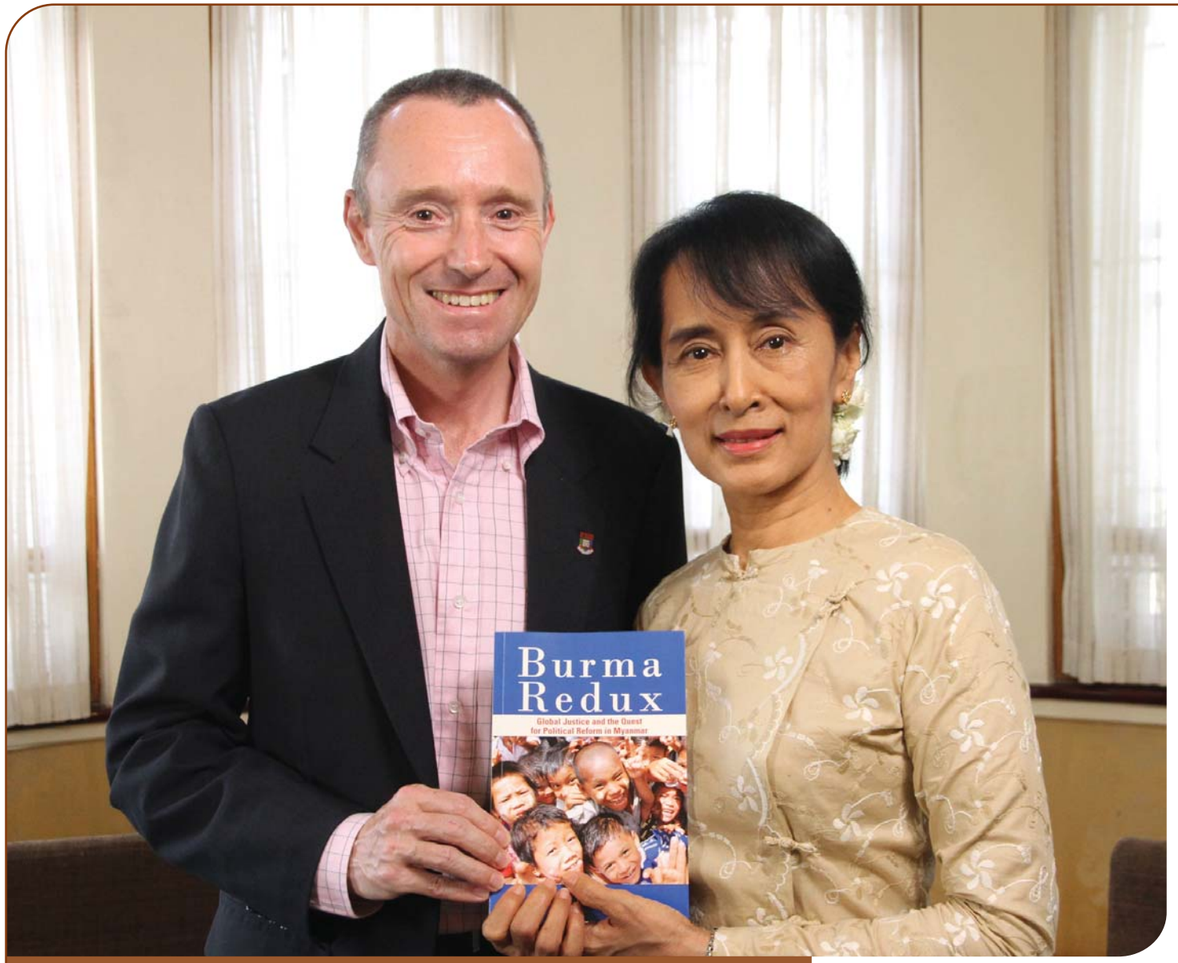
"There is a quote from an older Singaporean who said: "The way I feel about my lineage is that the relationship between Singapore's younger generation and the village is like a thread that becomes thinner. It's so thin, it could break and you will lose the connection." Ancestor worship is a way to ensure the thread is not broken," she says.

As younger generations have gone back, they have found the villagers to be more educated, entrepreneurial and cosmopolitan than their parents described. A more balanced relationship has emerged, but ancestral lineage continues to be a unifying factor.

"Ancestral worship is integral to the Chinese identity. There is still a belief that ancestral worship brings people together and helps to establish their identity. The ancestor is probably also a mirror image of one's self – the values, everything that has come to you. I think that's why it will never go away," she says. ■



Rebuilding the Ancestral Village: Singaporeans in China is published by Hong Kong University Press.



Looking for Ways to Revive Burma

What can the rest of the world do to help Burma? That was the final question asked of Aung San Suu Kyi and it came from a man who has been working towards that very goal.

Professor Ian Holliday's new book, *Burma Redux*, is based around the question of how the world can help, and he put it to Daw Suu.

"First of all," she said, "they've got to take an interest in what's happening in Burma, to really find out what's going on here. And then they can do practical things like getting in touch with the NLD (National League for Democracy, Daw Suu's political party) and getting in touch with all these other organizations outside Burma who are trying to help us to achieve democracy."

The answer could have been a synopsis of Professor Holliday's own involvement in Burma.

He first became interested 12 years ago when he moved to Hong Kong as a political science scholar and started reading up on Asia. He was increasingly drawn to Burma, a resource-rich but poorly-developed country where post-colonialism has gone spectacularly badly, and he began using his academic connections as a platform to shed light and offer help.

He launched an annual Burma conference to bring together academics from Asia and the West and civil society leaders from Burma to discuss the country and its future. He also started the MOEI programme in 2008 to send undergraduates to the Thai-Burma border for eight-week periods to teach English to Burmese refugees. The programme is named after the river that separates the two countries for much of its length.

Burma Redux developed alongside these initiatives and asks specifically how the outside world can help a country that has been under military rule since 1962 to achieve meaningful, more democratic change.

It draws in part from the views of Burmese people, gathered in 'listening projects' run by NGOs. Not everyone adheres to Daw Suu's ideals for a democratic society, at least for the time being.

"One of the conclusions I reach is that the outside world can't take any choices for the Burmese people. We shouldn't be looking to develop ready-made solutions that we ship into Burma," he says.

"The Burmese people may take the same decision that the Chinese people have taken, at least over the past 30 years, which is to do a deal with authoritarianism if it brings them economic benefit and enhanced opportunities at the individual level."

"We have to recognize that if the government can deliver stable growth over the next 10 to 20 years, then the Burmese people may not have a strong taste for major democratic change – they may say this is good enough for now."

Another finding is that civil society is re-emerging in the country, particularly in the wake of Cyclone Nargis in 2008 which caused terrible flooding and destruction and resulted in much human suffering including at least 140,000 deaths.

The military junta was fearful of letting foreigners in to provide relief, so the Burmese people had to sort out the problems themselves. "The long-term benefit of that has been that they've become more capable of community action. That has to be a resource for the future," Professor Holliday says.

In discussing how the outside world can support Burma, he takes a strong stance against sanctions, which departs from Daw Suu's views. She believes sanctions harm the military leaders, not the people, but Professor Holliday says the data do not support his. Nor did any of the academics and civil leaders who attended his most recent Burma conference in June. "She is really out on a limb as far as that issue is concerned," he says.

The book places Burma's history and current circumstances within a wider context of global justice, which has become a topic of growing debate as people become more directly interested and connected with global crises through satellite TV and the Internet.

"There's been a huge rise in academic debate about global justice and what the rich world can do when there are humanitarian crises and structural problems like you find in Burma, where the military machine is so powerful and tends to crush any attempt at democratic change."

"What the wider world can do to help is to support grassroots, bottom-up efforts and allow a thousand flowers to bloom inside Burma."

A view that Daw Suu would undoubtedly endorse. ■

Burma Redux: Global Justice and the Quest for Political Reform in Myanmar is published by Hong Kong University Press and Silkworm, and later by Columbia University Press.

Behind the Scenes with Aung San Suu Kyi

The days leading up to Aung San Suu Kyi's appearance via live video link to HKU were nail-biting as organizers worked to overcome technical problems from Burma, but the aftermath was a relaxed and privileged time with one of the world's most respected leaders.

The lead-up to Aung San Suu Kyi's dialogue at HKU was preceded by technical breakdowns and poor Internet connections to her home in Burma, from where she was to speak. Up until the moment of her appearance, it was unclear if the sound and images would get through to the 1,800 people gathering at HKU to hear her words.

The day was saved when, a few minutes before the broadcast went live, one of her assistants produced a mobile phone that finally enabled them to establish Skype contact.

Professor Ian Holliday, who sat next to Daw Suu, said there was immense relief. "The last thing we expected was 90 minutes of uninterrupted coverage and that's what we got. It was fantastic in the end, it all fell into place."

The event was preceded by months of preparation. The idea of having Daw Suu speak was proposed last December by the Director of Communications, Katherine Ma, shortly after the Burmese political leader's release from house arrest. Professor Holliday was a natural choice to follow up because of his work on Burmese issues and he used his diplomatic contacts to put out feelers.

The lecture was pitched as a chance for Daw Suu to address China directly, as well as to talk to young people.

"She's always painted by the Burmese government as the darling of the West and she's never had great contacts with the Chinese. We thought this would be the best way to position it for her, to talk to Asia's number one university. What better platform could there be?" he says.

Daw Suu asked that her lecture be kept short so she could answer more questions, and she was clearly energized by the dialogue, apologizing at the end for keeping her answers brief so as to allow more questions to be asked.

That brevity was a hallmark of the discipline that Professor Holliday says she maintained both on and off camera.

"Even in private conversation when she's not being taped, she is still recognizably the same person. She doesn't let her hair down all of a sudden and become different. She's disciplined in everything she does," he says.

"She is a little forbidding I would say on initial contact, but because she's so gracious and so willing to fall in with established plans, that intimidating public personal falls away and you're left with a lovely lady."

After the broadcast was over, she chatted with the HKU team for about 45 minutes and took photos with them.

The discussions included her domestic matters – her son coming to visit, the damage done to her house by Cyclone Nargis in 2008, what her life was like now that she was no longer under house arrest. For instance, she had exhausted herself trying to do too much at first and was forced to rest.

"It was a nice human touch. She said during the broadcast that she was not an icon and didn't like being cast in that way, but she is an icon. There's almost nobody in the world who can touch her, maybe Nelson Mandela or Vaclav Havel. She's close to being unique, so it was very special for us to be able to talk on a very human level with this global icon," he says. ■

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