

biol SI BULLETIN

Volume 29 Number 2

October 2006

M.I.T.A (P) No. 034/04/2006

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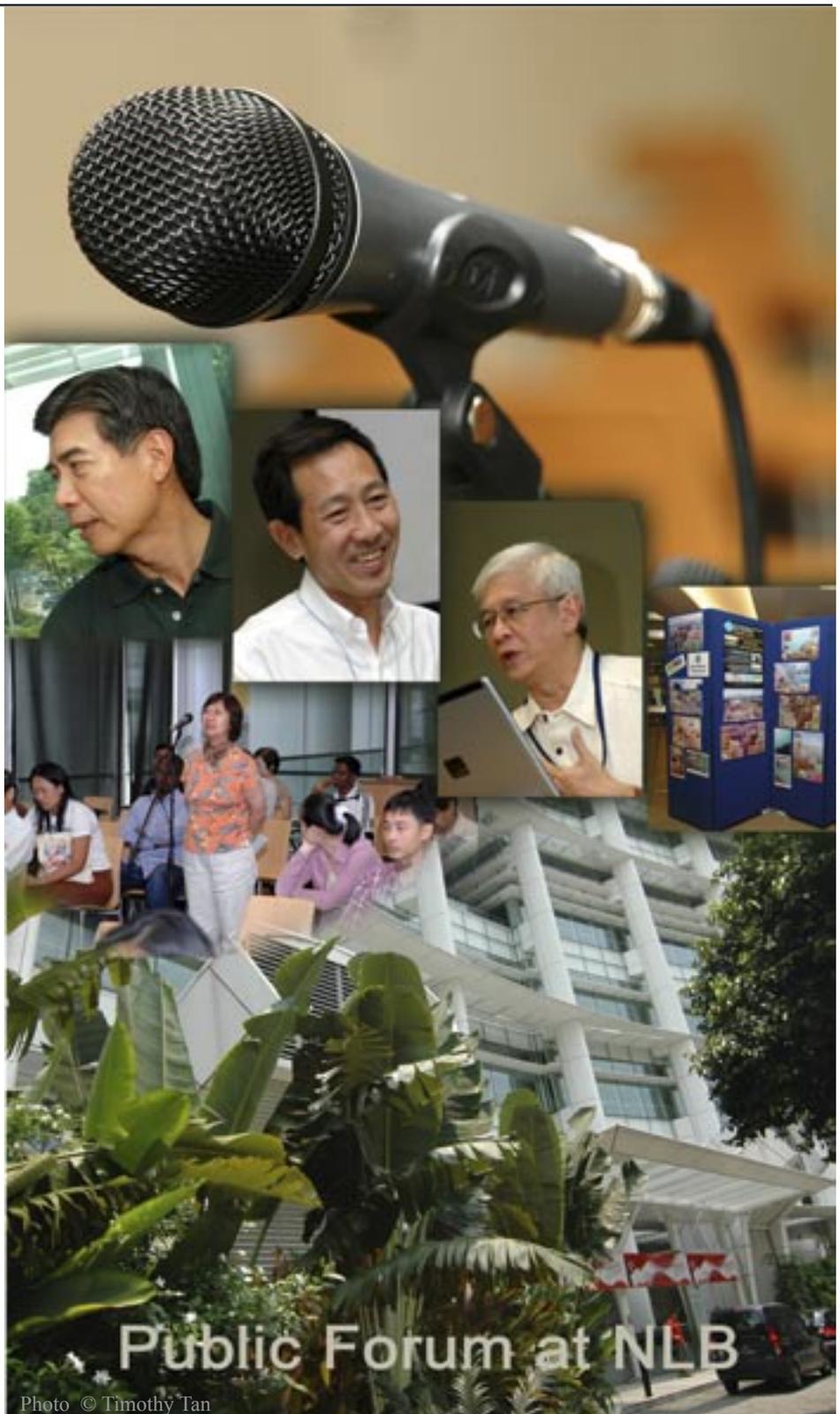


Photo © Timothy Tan

SINGAPORE'S PREPARATION AND PARTICIPATION IN THE 17TH INTERNATIONAL BIOLOGY OLYMPIAD (IBO) IN ARGENTINA



Nine medal winners from the 6th Singapore Biology Olympiad (SBO) were selected for training in preparation for the 17th International Biology Olympiad (IBO). After a week of intensive residential training, four were finally selected as members of the Singapore team. They were: Huang Kee Wui, Alfred Seng, Tay Rong En and Justin Wee.

The team, led by Drs Shirley Lim and Beverly Goh, accompanied by Mr Tan Hong Kim, representative from the Ministry of Education, departed for Argentina on July 5th. The journey was long and arduous, flying via Sydney and Auckland only to touch down in Buenos Aires to rush-hour traffic. That was not the end of our journey for the 'day' ... we had to brave the heavy traffic to travel to a domestic airport to catch our connecting flight to Cordoba city. It was only at about 11pm that we finally arrived at our hotel in Cordoba city. We had two days with which to adjust for the time difference. The first day was spent walking around the city of Cordoba to get a feel of Argentinean lifestyle. On the second day, we took a trip up into the mountains and it was an experience of a life-time to see condors flying just above our heads! The temperature was -5°C and our Singapore students were thrilled to bits to run around in the cold.

On 9th July, the organizers bused us out of Cordoba city on a 220km journey to Rio Cuarto. We reluctantly bade our team goodbye at the doorstep of our hotel as at this juncture, the students and the Jury members were separated. The journey was very interesting as we passed many different types of habitats and terrains. The Jury members were housed in two different hotels in Rio Cuarto itself while the students resided in Hotel No. 4 in the picturesque Embalse de Rio Tercero. After checking into the San Antonio Hotel, we were just in time to catch the finals of the World Cup for soccer, albeit, we were all too zonked out to appreciate the match much!

Rio Cuarto is located in the very core of Argentina and at the entrance of Cordoba's touristy southern hills. The competition and Jury sessions were all held in the campus of the Universidad Nacional de Rio Cuarto (National University of Rio Cuarto). The university is recognized as one of the most important universities in Argentina and is situated on the northern shores of the Rio Cuarto (Fourth River).

In between the hectic days of competition, many interesting programmes were arranged by the organizers, e.g., Gaucho day. It was an extremely cold day and we had to huddle together on the bleachers to keep warm while watching the display of skills by the gauchos. We were subsequently warmed up with piping hot barbequed meats served ala Argentinean style – *El Asado*. Throughout our stay in Argentina, we were constantly introduced to various Argentinean customs such as the national drink, *yerba mate*, and the national dance, the tango. Our team had a great deal of fun; they also did well enough to secure the overall fifth rank out of 49 countries with a haul of two gold and two silver medals.

This is the 6th year that Singapore has participated in the IBO, and our track record has so far been very good. Our success cannot be taken for granted: we owe it to all the dedicated trainers from the Natural Sciences & Science Education AG of NIE/NTU, and the Department of Biological Science, NUS, who have pitched in to train the Singapore team annually. Through conversations with Jury members from the other countries who have also been successful in the IBOs, the same formula seems to hold true: 1) a dedicated team of biologists who not only volunteer their services to mentor the young team members, and are also enthusiastic about this service, helping to recruit younger members of the biology community to also do training; 2) good selection criteria that not only single out kids who have a natural flair, but those who are crazy about biology; and 3) solid support from the national education ministry and the management of the academic institutes. In taking the lead in the biology Olympiad selections, training and international competition, SIBiol needs to constantly bear this in mind, if Singapore is to be consistent in our success.

Prepared by:

Shirley Lim, *Chairman, SBO Organising Committee*

Beverly Goh, *Member, SBO Organising Committee*



7th SINGAPORE BIOLOGY OLYMPIAD

November 2006

National Institute of Education, Nanyang Technological University

The 7th Singapore Biology Olympiad (SBO), which is organised by SIBiol, with support from the National Institute of Education, Nanyang Technological University (NIE/NTU), Department of Biological Sciences, National University of Singapore (DBS, NUS), and the Ministry of Education, will take begin in November 2006. This annual competition sees the cream of our country's pre-university biology students competing against one another for honours and for the chance to represent Singapore at the International Biology Olympiad. All participants first sit for a Theory Test (to be held on 16 Nov 2006). The top students emerging from the Theory Test round will move on to the next round of evaluation in a Practical Test (to be held on 5 Dec 2006). Both rounds will be conducted at NIE/NTU. More information and photographs on the SBO and IBO are available on the SIBiol website at <http://www.sibiol.org.sg/>

WE WELCOME THE FOLLOWING NEW MEMBERS

Life Member

Mr Lim Chin Keong

Ordinary Members

Dr Adrian Elangovan

Mr Goh Joo Leng, Jeffrey

Dr Preejith P. V.

Dr Tim Roberts

Prof Paul P S Teng

Ms Wu Chiu Hsia Alexandra

SIBiol Primary School Teachers' Workshop

HOW TO ORGANIZE A SCIENCE CAMP FOR SCHOOL CHILDREN

Associate Professor Lim Tit Meng, President of SIBiol, conducted a workshop for primary school science teacher on 30 May 2006 from 9.30 am to 5.00 pm. A total of 25 teachers from 13 primary schools participated in the workshop held at the National Institute of Education, Nanyang Technological University (NIE/NTU). The workshop was jointly organised by SIBiol, NIE/NTU, and the Department of Biological Sciences, National University of Singapore (DBS, NUS).



At the primary school level, science is not yet taught in clearly defined fields such as biology, chemistry, or physics but rather as a holistic subject at a level that the kids can relate to in the real world. The activities developed for the workshop could help students learn science effectively through play and competition, or with simple hands-on experiments. Such activities could be offered in a Science Camp or as individual stand-alone items to supplement classroom teaching. A hands-on approach was adopted for the workshop, with teachers assuming the roles of the school kids and taking part in a series of fun learning experiments/activities.

There were 14 different experiments/activities designed to complement teaching in primary school science. Each experiment started off with a short introduction, followed by the actual activity, and ended with a group discussion on what was learnt and how the experiment could be related to primary school syllabus. Some of the activities that generated a lot of interest included one that required participants to test how many straws they could effectively use to suck up water so as to simulate the water transport system in a tree; 'How would my baby look like?', a game that dealt with human genetics, illustrating the principle of random assortment of genes; and experiments on bouncing raisins, which demonstrated the phenomena of chemical reactions and the physical properties of gas and buoyancy.

Judging by the positive feedback received from participants, the workshop was a resounding success. Among the comments received were some that indicated the workshop was both "relevant, interesting and fun" and had taught "useful ideas/skills [that could be applied] in a science camp for school children". This was encouraging for the workshop organising team which also included A/P He Jie (workshop co-ordinator) and supporting staff from NIE/NTU and DBS, NUS. Indeed, it was A/P Lim's hope that the teachers would adopt or modify the activity sheets for their application in their schools.

More photographs available on the SIBiol website at <http://www.sibiol.org.sg/gallery/scworkshop2006>

Prepared by:

Lim Tit Meng, *Trainer, SIBiol Teachers' Workshop*

He Jie, *Coordinator, SIBiol Teachers' Workshop*

PUBLIC FORUM ON THE ENVIRONMENT:

Facing our Environmental Challenges with Science & Technology



This event was jointly organized by SIBiol (coordinators: Associate Professors Sanjay Swarup and Low Boon Chuan) and the National Library Board (NLB) at the National Library Building, Victoria Street. Saturday morning of 9 September 2006 saw more than 80 enthusiasts gather for this occasion. Three noted speakers talked about diverse aspects of the environment, its concerns and what we can do about it as good Samaritans in Singapore. The first talk entitled "Preserving Singapore's Marine Biodiversity" was delivered by Professor Chou Loke Ming, Department of Biology Sciences, National University of Singapore. He presented the changing face of marine environment surrounding Singapore and the region. Prof. Chou ended his talk on the positive note that it is indeed possible for marine biodiversity to co-exist with active sea traffic, basing this optimism on the results from the recent conservation efforts at

Pulau Semakau. Next, Mr. Edwin Khew, CEO of IUT Global, Singapore, delivered his talk on "Environmental 'greening' by renewable energy". He provided a broad view of the waste recycling measures and future targets in Singapore, impact of waste management on the environment and how new technologies such as biomethanization of solid waste can provide sustainable commercial solutions to waste recycling and energy generation. In the third talk by Professor Ong Choon Nam, Department of Community, Occupational, and Family Medicine, National University of Singapore, he discussed about the broad global and local effects of climate change. His talk "Impact of Environmental Aerosol on Water Resources and Human Health" pieced together effects of global warming, its sources and possible areas of reduction of greenhouse gas emissions. Prof. Ong discussed the effects of climate change on human health, in particular the increasing incidences of vector-borne diseases. These talks were followed by a panel discussion, where the three experts provided their views on questions raised by the public. The forum concluded on an optimistic note with a feeling that even in a small and highly urbanised country such as Singapore, the efforts to protect, sustain or remediate our environment are gaining support as well as momentum, and that the challenges taken on are already bearing fruit. It was gratifying to see much interest from both young and young at heart in this theme. Based on this response, SIBiol plans to organize other such thematic events in partnership with NLB.

In conjunction with the Forum, NLB set up some panels at the level 7 Reference Library section, to showcase posters offered by the noted speakers. NLB also compiled a list of related references and resource books for the library visitors to learn more about biodiversity, conservation, and environmental health issues.

More photographs available on the SIBiol website at <http://www.sibiolog.org.sg/gallery/>

Prepared by:

Sanjay Swarup, Co-coordinator, SIBiol Public Forum on the Environment



John R. "Jack" Horner Public Lecture: *Jurassic Park – Fact & Fiction*

SIBiol co-sponsored (together with Faculty of Science, NUS, and the Singapore Science Centre) a Public Lecture by Dr John R. "Jack" Horner (Museum of the Rockies/Montana State University, USA) at the Singapore Science Centre on 11 Jun 2006. Said to be the inspiration behind



Michael Crichton's fictional lead character 'Dr Alan Grant' in the hugely successful Jurassic Park books and movies, Dr Horner served as the technical advisor for the movies. Dr Horner is, of course, also well-known in academia for his numerous achievements in palaeontology. In his talk, he discussed where fact becomes fiction for 'artistic license' in the movies, and in what ways real science is beginning to resemble what was once thought to be 'science fiction'. A large audience attended the talk including SIBiol members, who were treated to free entry. The 45 min lecture was enlightening and entertaining, with the speaker 'warming up' the audience—especially the younger ones present—with questions regarding their favourite dinosaurs. In the Q and A session that followed, the favour was returned with Dr Horner kept busy with queries from the enthusiastic children... a good sign for the future surely!

Photograph courtesy of the Raffles Museum of Biodiversity Research, National University of Singapore.

SIBiol Research Trust Fund - Call for Project Proposals

The SIBiol is inviting applications for Research Grants under the Institute's Research Trust Fund (RTF). The aim of the RTF grants is to support/facilitate research on local topics/questions in biology by SIBiol members. To date, the RTF has supported over 30 research projects.

Applications are open to Ordinary members and Student members of the SIBiol (Student member applications must be in collaboration with an Ordinary member). Grants awarded are up to a maximum of S\$5,000.00, for a two- or three-year project. Grants are strictly meant to cover the cost of consumables or student assistance, and not for the purchase of equipment. Interested members should submit their Project Proposals in triplicate by **2nd January 2007** to:

The Honorary Secretary
The Singapore Institute of Biology c/o Natural Sciences Academic Group
National Institute of Education, Nanyang Technological University
1 Nanyang Walk, Singapore 637616

The Project Proposal should include the following:

1. Objective(s)
2. Background information
3. Significance of the project
4. Itemised estimated costs

Some of the projects supported by the SIBiol RTF in the recent years include:

- "Regeneration of injured tissue in *Acabaria* sp. (Gorgonacea, Octocorallia): An in situ experiment." (1994)
- "Studies on photosynthetic responses to high solar radiation on high value crops." (1995)
- "Application of RAPD-PCR and RNA fingerprinting to estimate natural genetic variation in *Acacia mangium*." (1996)
- "Factors affecting hatch rates and sex ratios of the green turtle (*Chelonia mydas*) eggs in natural and hatchery nests at Talang Talang Besar, Sarawak." (1997)
- "Conservation needs of key Southeast Asian taxa." (1999)
- "Using in situ mesocosms to study the effects of heavy metal and petroleum hydrocarbon loading on phytoplankton and bacterial dynamics." (2001)
- "Biomedical potentials of marine fouling sponges collected from Singapore waters" (2005)

Student Projects supervised by SIBiol members



Photo © gsm11@wenschool.net.org

From the Science Research Programme 2005/06 (Distinction award for Poster Presentation):

Studying the airspora composition across Singapore

See Yi Yang¹, Nang Su Wai¹, Wong Min Hao¹, Ong Tan Ching², Chew Fook Tim², Hugh T. W. Tan²

¹Hwa Chong Institution (College Section); ²Department of Biological Sciences, National University of Singapore, Singapore 117543

This study aims to capture and identify the airspora composition in the Singapore environment as pollen has been studied extensively in western countries but not in Singapore. Self-fabricated Durham traps were used to capture the airspora at twelve sampling sites. The slides were then viewed at 400× magnification. After identification, the composition of the airspora and the correlations with the sites were drawn for discussion. Results showed that airspora types increased with increasing height and that there was a significant positive correlation between nearby sites of different heights. Fern spores were typically found in larger numbers and *Nephrolepis auriculata* (13 – 43%) and *Pteridium aquilinum* (4 – 36%) proved the most common of the identified airspora. However, pollen counts remained relatively low with pollen of *Cassia surattensis* being the most common. Correlations were observed between the sampling sites. Further studies are needed for the data to be conclusive.

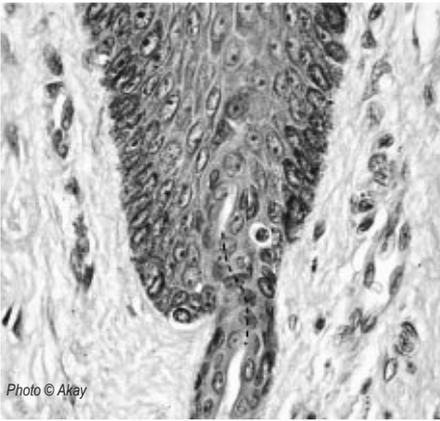


Photo © Akay

From the 10th Biological Science Graduate Congress, 30 Nov–2 Dec 2005 (first prize oral presentation winner under Functional Genomics and Structural Biology theme):

Identification of the human sweat proteins

Sravanthy Gopinath, Zhang Xin, Bi Xuezi, Chew Fook Tim

Department of Biological Sciences, National University of Singapore, Singapore 117543

The human sweat has been shown to contain diverse proteins, in addition to salts and urea. Several of these may have specific anti-microbial and other immune functions. To identify and analyze the putative role of sweat proteins we first obtained a 2-dimensional liquid chromatography tandem mass spectrometric (2D-LC-MS-MS) profile and 2D-gel electrophoresis (2DGE) proteome map of human sweat. Eccrine sweat from several individuals were collected, pooled and processed by exhaustive dialysis, lyophilized and precipitated. A proteome map was then obtained between pH 4-7. Subsequent in-gel digestion and tandem mass spectrometric analysis lead to the identification of each of these proteins. Via 2D-LC-MS-MS, we identified more than 300 components with two or more peptides matches. These included immunoglobulins (IgG; IgE), dermcidin precursor and lysozymes. Via 2DGE, multiple isoforms of major sweat proteins such as zinc alpha glycoprotein (ZAG), fatty acid binding protein-5, lactotransferrin, prolactin-induced protein, cystatin, proteinase inhibitor, clusterin and psoriasin, were identified. We have thus identified many human sweat components. Qualitative and quantitative variations of these proteins in pathologic conditions may lead to the detection of new biomarkers for specific diseases. Evaluation of their specific functions may also provide insights into sweat-related disorders, auto-antigens and possible immuno-modulatory and anti-microbial molecules.

From the Biology in Asia International Conference, 7–10 Dec 2004 (Poster Presentation):



Photo © Shirley S L Lim, NIE

The effects of snail size, density and temperature on duration of movement and habitat selection in *Littoraria* sp.

Pek Che Tan, Shirley S. L. Lim

Ecology Lab, NSSE, National Institute of Education, Nanyang Technological University, Singapore

Smooth periwinkles, *Littoraria* sp. are distributed unevenly across different microhabitats (e.g., on bare rock surfaces, in crevices, among barnacles, etc.) in the intertidal region. Field studies at an artificial rock bund at Pasir Ris Nature Park showed that temperatures at bare rock surfaces are significantly higher than that among barnacles and in crevices. Habitat selection by *Littoraria* sp. sampled at this field site was studied in the laboratory using artificial microhabitat plates (terracotta tiles with three microhabitats: simulated bare rock surfaces, crevices and barnacles fashioned out of kiln-fired clay). Duration of snail's movement and habitat choice at combinations of two densities (low [n=10] and high [n=30]), three temperatures (25°C, 35°C and 45°C) and two snail sizes (small [6.50mm ≤ shell length ≤ 8.00mm] and large [9.50 ≤ shell length ≤ 11.00mm]) were investigated. Habitat choice and duration of snail's movement were not significantly affected by snail size and density. Duration of snail's movement at 35°C and 45°C were not significantly different but both were significantly shorter than that at 25°C (18.8 ± 2.8 minutes and 9.9 ± 1.4 minutes respectively cf. 40.6 ± 7.2 minutes). Snails preferred crevices to barnacles and bare rock surfaces but there was no significant difference in habitat choice for the latter two habitats (Tukey's test, bare rock surfaces < barnacles < crevices). During the experiment, temperature at crevices (32.7 ± 0.4°C) was significantly lower than that at barnacles (33.7 ± 0.4°C) and bare rock surfaces (35.1 ± 0.4°C) demonstrating that *Littoraria* sp. selected a cooler habitat under heat stress.

The 32nd Annual General Meeting (AGM) and the 6th Annual National Biological Convention (ANBC) of the Singapore Institute of Biology (SIBiol)

The 32ndAGM and 6th ANBC* will be held on Oct 28 (Saturday), 2006, at the Guild House NUSS.
The programme is as follows:

11:30 –12:00 Noon	Registration of members/participants
12:00 –1:15 PM	Buffet lunch
1:15 – 2:45 PM	AGM business meeting and reports
2:45 – 3:00 PM	Coffee break
3:00 – 5:05 PM	6th ANBC Seminar presentation:
3:00 – 3:25 PM	1) Bioscience Entrepreneurship in Asia Or Making Money from the New Biology – Prof. Dr. Paul Teng P.-S., <i>Natural Sciences and Science Education, Nanyang Technological University</i>
3:25 – 3:50 PM	2) How Ethical Dilemmas in Bioethics can be Resolved – A/P Dr. John Elliott, <i>Department of Psychology, National University of Singapore</i>
3:50 – 4:15 PM	3) CITES Implementation in Singapore - Mr. Gerald Neo, <i>CITES Section, Agri-Food & Veterinary Authority of Singapore (AVA)</i>
4:15 – 4:40 PM	4) I Smell You! - Evidence of Eavesdropping in Orb-weaving Spiders – Mr. Koh Teck Hui and A/P. Dr. Daiqin Li, <i>Department of Biological Sciences, National University of Singapore</i>
4:40 – 5:05 PM	5) Biodiversity is the raw materials for biotechnology: the case of Tarsiers – Dr. Myron Shekelle, <i>Department of Biological Sciences, National University of Singapore</i>
5:05 PM	Closing of 6th ANBC

All are welcome!!

*The ANBC talks from 3–5 PM are opened to public; all are invited.

Abstracts of Talks Presented at the 6th ANBC of SIBiol at NUSS Guild House on Oct 28 (Saturday) from 3–5 PM

1) Bioscience Entrepreneurship in Asia, or Making Money from the New Biology - Prof. Dr. Paul Teng P.-S., *Natural Sciences and Science Education, Nanyang Technological University*

The 21st Century has been widely touted as a century for the renaissance of a “New Biology” in the form of Life science and Biotechnology. Asia is currently a source of global economic growth where the demand for bio-based products for food, feed, fiber and industrial materials is fast growing. Putting all these together gives an exciting mix for innovation and entrepreneurship! Successful business models have been developed to harness the potential of BioScience to meet the demands for food, feed and organochemicals based on value creation and value capture mechanisms. Human use of biological knowledge is only at an early stage because of exciting advances in several aspects of BioScience

such as molecular biology, genomics and Recombinant DNA technology. Conventional techniques such as hybridization, and technologies such as tissue culture, have created much value for some businesses, but these are generally considered “low end” applications valued only in millions of US\$. “High end” applications such as genetic engineering have led to genetically modified crops which are planted in over 85 million ha worldwide since their introduction in 1996 and are now worth more than US\$ 4 billion a year in seed sales. However, as bioscience applications become more basic in nature, product development has increased in its complexity and requires special attention to obtain “freedom to operate”. Controversy about novel gene technologies threatens to derail the BioScience Revolution as public concern about safety issues and bioethics are fuelled by opposition groups to the new biology. Special science communication techniques and messages to address such concerns

are needed. Early education programs can have high payoffs for companies that invest in novel products. When matched with Asian Mega trends in culture, demographics and economics, BioScience products provide huge potential for exploitation and value creation in the coming years. Their demand will grow as Asia’s many economies grow and the demand for quality food, feed, fuel and other bio-based materials increases. This potential will be further enhanced by the declining capacity of the world’s oil reserves to provide hydrocarbons for fuel and materials, and plants will become more important as bio-factories for basic ingredients to sustain human societies.

2) How Ethical Dilemmas in Bioethics are Resolved – A/P Dr. John Elliott, *Department of Psychology, National University of Singapore*

Intractable issues often arise in biomedicine

and bioethics. The debate over the use of embryonic stem cells is a clear example that was contentious in Singapore. Others that have attracted much less publicity locally include experiments with animals and the genetic modification of crops. In every case there are strongly held but opposing views on what is acceptable. The paper discusses how one can ethically approach and resolve such issues.

3) CITES Implementation in Singapore
– Mr. Gerald Neo, CITES Section, Agri-Food & Veterinary Authority of Singapore (AVA)

The Agri-Food and Veterinary Authority (AVA) safeguards food safety, animal and plant health. It is also the Management Authority that implements and enforces the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in Singapore. National wildlife legislations and cases involving illicit trade in CITES wildlife, its parts and products in Singapore will be discussed and highlighted.

4) I Smell You! - Evidence of Eavesdropping in Orb-weaving Spiders – Mr. Koh Teck Hui and A/P. Dr. Daiqin Li, Department of Biological Sciences, National University of Singapore

Orb-weavers have relatively poor eyesight, thus primarily rely on scents and vibrations to locate both mates and prey. However, predators or parasites may exploit these senses. We investigated chemical signalling conflict between mates and parasites in the golden web spider, *Nephila antipodiana*. We also performed bioassays to identify bioactivity of pheromones released by juvenile and adult *N. antipodiana*. Male *N. antipodiana* and the kleptoparasitic spider, *Argyrodes flavescens*, were exposed to four chemical cue treatments (bodily abdomen wipe, dragline, spider web, whole spider) from different life stages of *N. antipodiana*. Significantly, more *N. antipodiana* males were attracted to the extracts of the abdomen wipes from the virgin adult females than the pheromones released by juveniles and sub-adult females. These chemical cues produced by adult *N.*

antipodiana females attracted males, and evoked courtship display behaviour of males, leading to successful copulation. Bioassays had also determined that the kleptoparasites, *A. flavescens*, are generalist eavesdroppers, which are attracted to the generic chemical compounds on the silk of *N. antipodiana*. The presence of the chemoreceptors hairs on *A. flavescens* were examined by scanning electron microscopy, showing evidence of chemical receptivity of the spider. Using further the Gas Chromatography Electro-Antenna Detection (GC-EAD), the possible kleptoparasite attracting pheromone has been isolated.

5) Biodiversity is the raw material for biotechnology: the case of Tarsiers in SE Asia – Dr. Myron Shekelle, Department of Biological Sciences, National University of Singapore

As Singapore positions itself as a world leader in biotechnology, it is important to repeat the commonly heard mantra: “biodiversity is the raw material of biotechnology”. A scan of the headlines reveals that leading efforts in biotechnology include exciting projects, such as one to synthesize an anti-malarial compound found in the leaves of *Artemisia annua*, a small tree found in China, and another concerning the curious Delta32 mutation at the CCR5 locus in humans, which offers resistance to HIV and seems to have originated in Scandinavia and to have been spread to other human populations by the Vikings. Biotechnology is clearly a promising field that holds enormous potential benefit for humanity. But behind the biotechnology headlines are the curious facts that the anti-malarial compound is found in one species of *Artemisia* and not in others, and the Delta32 mutation is found in one population of humans and is absent in most others. Therefore, biotechnology, at its very root, is almost entirely dependent upon knowledge of the distribution of species and populations, and this is the domain of biodiversity research. The number of species that have been described and named by science exceeds 1.5 million, but the number that remains undescribed, unnamed, and as yet unknown to science, is

far greater than that. Estimates range from 2–100 million total species, but these are only wild guesses. This presentation is not about biotechnology, but rather, about the race to uncover earth’s biodiversity, and the drive to preserve it before human activity has driven it to extinction. In this talk I examine the case of one taxon, the genus *Tarsius*, a small nocturnal primate endemic to islands of Southeast Asia, and one biogeographic region, Wallacea, an area that includes the island of Sulawesi. I present the results of more than 12 years of efforts, and show how a detailed survey of one taxon can offer a thumbnail estimate of biodiversity in an entire region. During the course of this research, seventeen taxa were identified from what was classified as a single subspecies just twenty years ago. Combined with other lines of evidence, these results suggest that biodiversity in the region may be underestimated by as much as an order of magnitude. Unfortunately, the pace of habitat destruction in Indonesia puts almost all of that biodiversity at risk of extinction. For the most part, these extinctions will occur before the soon-to-be-extinct species has even been identified by science. But at the same time, tarsiers are charismatic animals, and may themselves play a saving role as a flagship species for conserving the undiscovered wealth of biodiversity of the region, thereby preserving the raw materials for tomorrow’s breakthrough in biotechnology.

ALL ARE INVITED

Prepared by:

Benito C. Tan, Chairman, 6th ANBC, SIBiol