Governance and Circulation of Asian Medicines

Asia Research Institute, National University of Singapore
22-23 September 2015

This workshop is jointly organized by the Asia Research Institute at the National University of Singapore and the Research Centre on Science, Medicine and Society (Cermes3 – EHESS, CNRS, Inserm) in Paris, in Partnership with the PharmAsia Network.

Synopsis

This workshop will explore the ways by which public and private institutions in various Asian countries regulate, control and market industrial Asian medicine since the 1970s to date. A special emphasize will be given to processes of production, distribution and circulation as they become increasingly dependent of biomedical know-how, categories and clinical targets. Thus subject to new forms of biopower, Asian medicines however developed their own innovation and protection models – sometimes critically engaging with the dominating, molecular pharmaceutical paradigm that prevails since WWII – and are found increasingly present in the global marketplace.

Either initiated by corporate firms or encouraged by the States, the industrialization and standardization of Asian medicines have entailed dramatic changes bearing on both medical epistemology and therapeutic practice. This situation led to new questions pertaining to safety and efficacy. Similarly, hybrid forms of manufacturing practices – often inspired by so-called universal models of GMPs – and peculiar modes of regulation and (scientific) marketing characterize this industry. On the clinical end of the spectrum, the depersonalization of care (mass-production vs. individual variability) calls for a new understanding of Asian Medicine in today's world.

A series of guidelines have been established to regulate and monitor these transformations. This process has long been described as political, as it usually takes place in relation to central governing structures and entails remarkable transformations of therapeutic power. It is also deeply economic; one of the chief aims is to foster market penetration and the accumulation of capital. This reorganization, however, cannot be reduced to a mere political or economic reading. It also involves the moral foundations of medicine and therapeutic power, as they concern values and the nature of right and wrong. While we will not lose sight of the social, cultural, epistemological and clinical dimensions of contemporary changes in Asian medicine, it is indeed important in this workshop to observe the normative character and the moral inflection of these transformations. And this is all the more true when speaking of norm-generating regulatory regimes.

The World Health Organization is a typical actor in this field, alongside national institutions. However, the content, and degree of compliance to international guidelines varies considerably from one

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country or one manufacturer to the other, which are free to implement them or not. This variability also emerges from the loose nature of the controls, which in turn largely enables the circulation of unregistered or illicit herbal pharmaceuticals, which may comprise plants, minerals or metals banned in the national pharmacopoeias of targeted countries. To study this complex landscape therefore requires a collective, multi-sited and multidisciplinary approach, covering several configurations and geographic areas in Asia.

The aim of this gathering is to unpack the organized sets of practices that govern contemporary Asian medicine from their production in the lab to their circulation within circuits and networks of all kinds. The method put forward will merge history of science, medical anthropology and science and technology studies.

Convenors

Gregory Clancey (ARI, Singapore)
Céline Coderey (ARI, Singapore)
Laurent Pordié (Cermes3, Paris)

Participants

Liz Chee (ARI, Singapore)
Anita Hardon (University of Amsterdam)
Por Heong-Hong (University of Malaya)
Wen-Hua Kuo (National Yang-Ming University, Taipei)
Eunjeong Ma (Pohang University of Science and Technology)
Karen McNamara (ARI, Singapore)
Evelyne Micollier (Institute for Research on Development, IRD, Vientiane)
Sebastianus Nawiyanto (University of Jember, East Java)
Martin Saxer (Ludwig Maximilian University, Munich)
Vijay Singh Chauhan (Consultant, Mumbai)
Arielle Smith (Cermes3, Paris)
Ayo Wahlberg (University of Copenhagen)

Programme

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Ayo Wahlberg

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Martin Saxer

Transformations in Medical Epistemology, Therapeutic Practice and (Asian) Medicines Regulations in PR China

Evelyne Micollier

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WHOse Guidelines Matter?
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Modernizing Traditional Medicines in Java:
Regulations, Production and Distribution Networks
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A Social History of Safety: Cynanchum wilfordii and EstroG-100
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Session 4: Navigating Licit and Illicit Realms

Negotiating Medical Efficacy in the Context of an Emerging Pan-national Medicine
Céline Coderey

Unqualified. The Heterodox Realm of Pharmaceutical Practices in Cambodia
Laurent Pordié

Baby-Face: The Asian Travel of Filipino Skin Whitening Products
Anita Hardon* and Michael Tan

Session 5: Crossing Boundaries - Status, Products, and Practices

Negotiating Standards and Authority in the (Bio)polis
Arielle Smith

Shark Liver Oil and Bear Bile Tea: How "Health Products" Reformulated the Boundary between Food and Pharmaceuticals
Liz Chee

Converting Crude Herbs into Therapeutic Formulations in the Pharma Industry
Vijay Singh Chauhan

Abstracts

Negotiating Medical Efficacy in the Context of an Emerging Pan-national Medicine

Céline Coderey (ARI, Singapore)

In the post-independence context dominated on the one hand by a strong nationalistic spirit and, on the other hand, by the increasing worldwide hegemony of biomedicine, the Burmese central government decided to valorise and improve traditional medicine by integrating it within the national health system beside biomedicine. This activated a process of formalization, modernisation and standardisation of the different aspects of this medicine including the production, the circulation and the distribution of medical products. Only practitioners who have followed a training in a public institute are granted the license to produce medicines and to treat patients; manufactured medicines can circulate on the market only after having being checked by the department of traditional medicine for issues of toxicity; alchemic medicine as well as a particular remedy composed of herbal extracts and administered by injection are highly restricted if not prohibited; shops selling medicines in forms of powder (derived from the raw materials) are requested – for the composition of their remedies – to rely on a standard manual provided by the department of traditional medicine. In this paper I intend to discuss two points. First, the regulations established by the government are motivated by the intent to comply with the international standards established by the WHO (and especially the GMP) aimed at guarantee safety and quality. I argue that they also emerge from the need to neutralize esoteric aspects of traditional medicine perceived as a potential threat for the state's authority and the wish to integrate the different minority regions into the nation through the creation of a pan-national medicine presented as 'Myanmar'. Second, attesting that the degree of the regulations implementation is often low, I wish to show how taking advantage of the weaknesses of the controls, healers and manufacturers navigate the boundaries between licit and illicit in order to protect their formula and maintain the uniqueness, attractivity and, in a way, the efficacy, of their products.

Shark Liver Oil and Bear Bile Tea: How "Health Products" Reformulated the Boundary between Food and Pharmaceuticals

Liz Chee (ARI, Singapore)

The 20th and early 21st centuries have seen the emergence of many products on the boundary between food and pharmaceuticals. Marketed as "health products", "dietary supplements", "nutritional supplements", "vitamin pills" etc., they remain understudied by historians of pharmaceuticals despite their increased commonality. Many were invented as "drugs" in the early twentieth century, but migrated in the direction of "foods", or nutritional add-ons as the word "supplement" suggests. One example is Shark Liver Oil, which by the mid-twentieth century had become a bestselling product in the United States. Another is Bear Bile Tea, a late twentieth-century invention of Chinese pharmaceutical company *Guizhentang*. This paper will use these two products to explore the food/drug boundary in two countries (China and the US) by examining changing legal and cultural definitions of "health products", as well as discussing the broader milieu within which Shark Liver Oil and Bear Bile Tea were produced, consumed, regulated, and circulated

Baby-Face: The Asian Travel of Filipino Skin Whitening Products

Anita Hardon (University of Amsterdam) and Michael Tan (University of the Philippines Diliman)

Skin-whitening products have a long history in the Philippines. This paper looks at the local evolution of skin-whitening products to show how they have become powerful metaphors that deal not just with skin-whitening but with concepts of health as reflected in a glowing skin, moral norms of cleanliness and flawlessness, and social status indicated by being light rather than white. The products' ingredients and their marketing draw from and contribute to discourses involving the "natural" and "synthetic",

"traditional" and "modern", "indigenous" and "western". We will examine products from two Filipino companies: Baby-face which is produced by RDL, a company based in Mindanao; and Maxi-Peel, a product made by the Chinese-owned corporation Splash. Both products have a large domestic as well as overseas Asian markets, and both contain an aggressive synthetic chemical hydroxyquinone which is banned in The Philippines, and not-prescribed by local dermatologists. To 'soothe' the effects of peeling with hydroquinone, both companies also produces 'natural' soaps and lotions, containing papaya extract and kojic acid (extracted from fungi) to nurture the skin. We will describe how the products' metaphors draw from their ingredients, as well as packaging, including the use of popular Filipino actresses who have also gained a following in other Asian countries. We will describe the complex and intertwined embodiment of both natural whiteners and synthetic exfoliating products using multi-sited ethnographic data, describing the paradoxes associated with some of these products' side effects now being confounded with efficacy.

Regulation, Pharmaceuticalization and Halalization: Negotiating the Safety and Identity of Herbal Products in Malaysia

Por Heong-Hong, Muhammad Ikmal Mohd Said and Tan Beng Hui (University of Malaya)

Increasing state interest in developing, commodifying and regulating traditional medicine has been a common scene across many countries over the past few decades. Influenced by the global regulatory trend set by the World Health Organization and prompted by the interest to enlarge its share in the growing global traditional medicine market, Malaysian government also began to regulate traditional medicine by mandating registration of traditional medical products and production since 1992. Over the past decade, the regulation has undergone several changes and become more complicated. This paper seeks to examine how different forces and ideas - therapeutic, religious, scientific, and commercial - come into negotiation with one another in the process of forming a regulatory framework. We focus on the conception of "safety" and "identity" of herbal products as two major sites of such negotiation. The questions we attempt to answer include: (1) how does the Ministry of Health comprehend safety differently from the herbal product producers/distributors/peddlers?, (2) how does different understandings of safety shape the response of herbal sector players to the regulation?", and (3) how does such difference and the negotiation shape the identity of the herbal sector and its products?" This paper also explores the herbal product sector response to the growing Halal demand due to expanding Muslim consumer market.

Medicines into the Circulation of Global Pharmaceuticals

Wen-Hua Kuo (National Yang-Ming University, Taiwan)

Departing from studies that either focus on medicinal herbs as used in local therapeutic environments or speculate concerning the foundation of the effectiveness of medicinal herbs in certain healing conditions, this paper attempts to make sense of how herbs as formulas retain their therapeutic identities when entering the circulation of global pharmaceuticals. Extending the analysis of biomedical platforms by Peter Keating and Alberto Cambrosio, this paper argues that for herbal formulas the platforms created are compatible with the regulations for other medicinal substances recognized as drugs. These platforms not only facilitate the applicability of biopharmaceutical platforms to botanical medicines; it grants ways for herbal formulas to enter the global market. Against these platforms, paths are emerging through which herbal formulas could be incorporated into global biopharmaceuticals circulation. Two products, PHY906 and TU-100, are chosen for our investigation. Widely used among Chinese and Japanese people, the two formulas have been pushed to demonstrate their therapeutic characteristics to the US Food and Drug Administration (FDA) as investigational drugs. This paper examines the institutional powers and motivations that keep pushing the changing of the two formulas into "adoptable" products for universal use. With STS perspective, this paper is not interested in whether Asian medicines really work but in how it can work beyond Asian populations. By analyzing the emerging platforms and paths seen in these cases, this paper invites new possibilities and imaginings for medicine that provides therapeutic faith and effectiveness for our time without questioning its origin.

A Social History of Safety: *Cynanchum wilfordii* and EstroG-100

Eunjeong Ma (Pohang University of Science and Technology)

On April 22, 2015, Korea Consumer Agency publicized that about 90% of functional foods containing Cynanchum wilfordii (*baek su oh*) on the market were not made out of "authentic" plants. The Agency's disclosure was translated into general public as indicating that *baek so oh* products on sale were "not safe" to take in. *Baek su oh* products are a combination of three herbal medicines and manufactured by a venture company Naturalendo Tech (NeT). According to Korean medicine, *baek so oh* helps the symptoms of menopause and peri-menopause. With the recognition of domestic and international regulatory agencies, NeT has emerged as a star venture business as its product was the biggest market hit out of more than 200 kinds of *baek so oh* products. As soon as the Agency's news was released, consumers were panicked, and stock prices of a star venture business NeT was plummeted. More importantly, the public panic over the authenticity of *baek su oh* posed fundamental questions regarding regulatory culture and practices the realm of functional foods in South Korea. How is safety perceived and practiced when dealing with natural functional foods? How is safety managed across diverse social groups? This paper takes up these questions with focus on a public outbreak over the safety and efficacy of functional foods in South Korea. Based on documentary analysis of the media, professional articles, and governmental and regulatory dossiers, this paper unfolds a complex, interconnected web of market, regulation, technologies, venture businesses, government, and consumers in South Korea.

WHOse Guidelines Matter?
The Politics of Regulating Traditional Medicine in Bangladesh

Karen McNamara (ARI, Singapore)

The industrial manufacture of traditional medicines in Bangladesh has led to controversies about what is considered traditional medicine, as traditional manufacturers compete with the surge of newly mass-produced herbal medicines in both local and global markets. As herbal and traditional medicines gain in popularity and acceptance, debates around compliance, quality, control, counterfeits, and standards reveal the struggles on a global and national scale to regulate these medicines. In this paper I will examine how the development of national drug policies about traditional medicines in Bangladesh coincided with global priorities around pharmaceuticals as represented by international institutions like WHO and WTO. The WHO's recommendations to incorporate traditional medicine into primary health care systems and to provide access to "Essential Drugs" became entangled with contestations over how traditional medicine was categorized and practiced in Bangladesh. I argue that the authority of the WHO is called into play as a legitimate source of knowledge, often for contradictory purposes, both by the state and by other local actors, such as traditional manufacturers.

Transformations in Medical Epistemology, Therapeutic Practice and (Asian) Medicines Regulations in PR China

Evelyne Micollier (Institute for Research on Development, IRD, Vientiane)

Even though an on-going process for almost one century by some specifics, the "biomedicalization" of Chinese medicine, namely modernization, standardization, industrialization, and "purification" of traditional compounds in basic research, has scaled up in scope and pace in the 1990s. Officially promoted from the 1950s, "Traditional Chinese Medicine" went through dramatic changes relative to epistemology and therapeutic practice. On the one hand, the nature and status of a number of pharmaceutical products and technologies from contemporary Chinese pharmacopoeia depend on several distinctive; eventually conflicting views of medical knowledge and therapeutic practice raising epistemological, social and patrimonial issues in China. Integrative (Asian-biomedical) forms of medicine may also reveal the resilience of traditional forms and produce alternative forms of modernity. On the other hand, scandals involving food, pharmaceutical products and China "Food and Drug Administration" have been nationally and globally mediatized in the 2000s. They badly damaged trust among the

population and contributed to raise awareness about safety and quality issues more specifically among the large newly emerged middle-class. Better compliance to international guidelines promoted by the WHO and to national guidelines of the New Health Reform, and marketing strategies, explain in part recent changes in medicines regulatory framework and regimes, assessing a governance shift. The main objective is to inform about the transformations of Asian medicines in nature, status and regulations in China, and to discuss about their implications. My proposal draws on long-term anthropological research relative to TCM and its related-issues, including medical research and R&D case studies investigated in 2000s China.

Modernizing Traditional Medicines in Java: Regulations, Production and Distribution Networks

Sebastianus Nawiyanto (University of Jember, East Java)

Traditional medicine in Indonesia is rapidly transforming due to a number of factors including the growing presence of the biomedical system promoted by the government and drug manufacturers, the requirement of more standardized and scientifically-proven medicinal products, and the declining popularity of herbal medicine among the young generation. Traditional medicines producers need to adjust continuously to the changing environment. This paper seeks to examine these transformations by taking Java as its focus of attention. There are two major reasons for this choice. First, the island of Java is home for many traditional medicines producers, both small scale, home-based industries and large-scale, company-based industries. Second, the largest proportion of the users of traditional medicines and distribution networks are also found in the island. The major questions the paper seeks to address are: 1) what regulations have been set in place by the state authorities with regard to the production and distribution of traditional medicines in Java? How do the producers and the related partied respond the regulations?; 2) what efforts have been made by the producers of traditional medicines to accept modernization challenges and to improve the performance of their products; 3) how traditional medicines circulate in Java and what are their distribution networks?

Unqualified. The Heterodox Realm of Pharmaceutical Practices in Cambodia

Laurent Pordié (Cermes3, Paris)

This paper takes as port of entry a poly-herbal drug mass-produced in India, and follows its trajectory from its production as an Ayurvedic Proprietary Medicine to its importation and use in Cambodia. The drug passes through licit and illicit circuits and networks until it reaches a pharmacy, where the practices of unqualified personnel bring a new life to it: the drug is unpackaged, mixed to other non-herbal (prescription) pharmaceuticals and sold as an entirely new compound entity to patients. The critical study of both this itinerary and this transformation reflects two parallel but intertwined enquiries: the first deals with the fluid nature of pharmaceutical regulation (or lack thereof) in Cambodia and the spaces this creates for both innovation and malpractice; the second set of enquiries explores various scales of drug circulation and their transformative effects, ranging from transnational exchanges to the local practice of extemporaneous drug combination. Refusing to only see the Cambodian situation as a derogative “pharmaceutical anarchy”, this paper highlights the organizational logic, the pragmatism, the innovative abilities and the shifting moralities of the unqualified pharmacist and her heterodox practices.

Tibetan Medicine at the Juncture of Modernism, Neoliberalism, and Heritage Making

Martin Saxer (Ludwig Maximilian University, Munich)

In this talk, I trace the history of the industrialisation of Tibetan medicine against the background of different strands of what could be called "the modern project" in China – high-modernist development with a nationalistic twist, selective neoliberal reform, and the making of cultural heritage. Each of these strands is embedded in a particular set of rhetoric and follows a particular vision of development. I argue

that the creation of a Tibetan medicine industry in the new millennium took place at the juncture of these three strands rather than at a crossroads between modern and traditional, local and global, old and new. Investigating the alliances, conflicts and opportunities afforded by this constellation, I ask the question what this means for Tibetan medicine as a system of knowledge (or knowledge-practice, if you will). How do these three strands shape the ways in which knowledge is (dis-)located, claimed, reaffirmed, and safe-guarded at this historical juncture?

Converting Crude Herbs into Therapeutic Formulations in the Pharma Industry

Vijay Singh Chauhan (Consultant to the Ayurvedic Pharma Industry, Mumbai)

As the attention of the pharmaceutical industry shows significant interest into producing drugs issuing from so-called traditional systems of medicine in India, people involved in formulations development face great challenges pertaining to quality, safety and efficacy. This paper will address the methods and constraints in the identification of raw herbal materials and their most active components, in the establishment of phyto-chemical profiles for herbal products, or again in the measurement of safety and efficacy through (clinical) evidence based medicine. These steps are part of a highly complex scheme in the formulation of drugs, involving various scientific disciplines together with Ayurveda, such as pharmacognosy and phytochemistry, research models in the field of toxicology and pharmacology, modern galenics, and protocols developed for clinical studies. The presentation will comprise a brief discussion on each of these points.

Negotiating Standards and Authority in the (Bio)polis

Arielle Smith (Cermes3, Paris)

During the colonial era (1819-1959), southern Chinese migrants in Singapore largely attended to their own welfare—accommodation, employment, minor dispute resolution, religious and festival services, healthcare and funerary assistance were often arranged by dialect/native place associations (*bang*). Meanwhile, biomedical services were primarily reserved for British expatriates, and were only made more broadly available after the end of the Japanese occupation in 1945. In 1947, the First Medical Plan was proposed based on 'proof' of the value of biomedicine and the worthiness of public health investments. With Euro-American forms of political economy and healthcare as benchmarks of 'progress', Singapore's post-colonial government adapted the British administrative and healthcare systems to nationalist purposes. Biomedical research and development was fostered as an important economic growth sector, designed to attract international investors, biopharmaceutical companies and biomedical professionals and to promote Singapore's image as a modern, high-tech nation-state. A productive body politic—surveilled, disciplined and profiled—was cultivated as the country's primary natural resource and embodiment of the 'biopolis of Asia.' At the confluence of charitable and commercial work, Chinese medicine emerges in somewhat strained relation to Singapore's biopolitical processes. Appraised against an exclusively biomedical healthcare system, this mercurial assemblage is often framed as a 'complementary' practice with economic potential; at worst, it is depicted as antiquated and 'unscientific' quackery. While tracing the linkages and disjunctures entangled within this status disparity, this paper will explore how Chinese medical physicians negotiate their practice with respect to the biomedical standards and moral authority asserted in this sociopolitical framework.

Urban Herbal – The Making of Asian Medicines

Ayo Wahlberg (University of Copenhagen)

In many parts of Asia, the latter half of the 20th century marked a confluence of two remarkable developments. On the one hand, unprecedented rates of urbanisation and economic growth transformed (and indeed continues to transform) social life as increasing numbers began living and working in urbanised centres. On the other hand, many governments began pursuing national programmes to institutionalise, industrialise and commercialise the cultivation, production and distribution of traditional

herbal medicines. In the process, vernacular traditional knowledge has been tamed through botanical systematisation, 'kitchen cooking' preparation methods have been standardised through techniques of industrial extraction and production, just as the dispensing of fresh and dried medicinal herbs has been to some extent replaced by the sale of mass-produced pills and tonics. This is not to say that traditional practitioners have ceased collecting, preparing and dispensing their own fresh herbs whether sourced from the wild or markets, this certainly takes place. Nevertheless, the 20th century did see the consolidation of a new 'urban herbal' in many parts of Asia. In this paper I will ask how we should situate this 'new' form of Asian herbal medicine. Have traditional medicines become yet another casualty of modernity's growing inventory of -isations? Or should we instead insist that traditional medicines – as they always have been – in Asia are continuously in making? And should we distinguish between modern 'urban' and traditional forms of herbal medicine?

Biographies

Convenors

Gregory Clancey is an Associate Professor in the Department of History, the Leader of the STS (Science, Technology, and Society) Research Cluster at the Asia Research Institute (ARI) and Master of Tembusu College at the National University of Singapore (NUS). He received his PhD in the Historical and Social Study of Science and Technology from MIT, and has been a Fulbright Graduate Scholar at the University of Tokyo, and a Lars Hierta Scholar at the Royal Institute of Technology (KtH) in Stockholm, Sweden. He has won three NUS teaching awards. Prof Clancey's research centers on the cultural history of science & technology, particularly in modern Japan and East Asia. His book *Earthquake Nation: The Cultural Politics of Japanese Seismicity* (UC Press, 2006) won the Sidney Edelstein Prize from the Society for the History of Technology in 2007, and was selected as one of the "11 Best Books about Science" for the UC Berkeley Summer Reading List, sent to all incoming Freshmen in 2009. He is co-editor of *Major Problems in the History of American Technology* (Houghton-Mifflin, 1998) and *Historical Perspectives on East Asian Science, Technology and Medicine* (Singapore U. Press & World Scientific 2002). His email is hisgkc@nus.edu.sg.

Céline Coderey holds a PhD in Anthropology from the University of Provence, Aix-Marseille (France). She studied the conceptions of health/disease and the therapeutic practices existing in Arakan (Burma) and issuing from Theravada Buddhism, astrology, traditional medicine, alchemy and local spirits cults. She held a postdoctoral grant from the Swiss National Fund, with which she has conducted research at the Centre Norbert Elias in Aix-en-Provence on the implementation and appropriation of biomedical practices in Burma, mainly in the field of reproductive and mental health. She is currently a Postdoctoral Fellow in the Science, Technology, and Society Cluster at the Asia Research Institute, National University of Singapore. Her research examines the contemporary dynamics of the health sector in Burma/Myanmar, and specifically how political and social transformations within the country affect both healing practices and health-seeking processes. Her email is ariceli@nus.edu.sg.

Laurent Pordié is an anthropologist (PhD) and a pharmacologist (PhD), Senior Researcher with the French National Center for Scientific Research (CNRS) at the Cermes3, a unit focused on medicine, science and society, and a member of the Center for South Asian Studies at the Ecole des Hautes Etudes en Sciences Sociales (EHESS), both in Paris. Laurent founded the PharmAsia Network (http://pharmasia.vjf.cnrs.fr/) and currently acts as its coordinator. His current research takes an ontological route by studying what makes possible for a pharmaceutical object to come into being in India and Cambodia. He is the author of several books, including *Tibetan Medicine in the Contemporary World* (Routledge, 2008 - winner of the ICAS Book Prize 2009) and *Les nouveaux guérisseurs* (Editions de l'EHESS, 2013), as well as recent edited special issues with the *European*

Journal of Transnational Studies (2013), *Culture, Medicine & Psychiatry* (2014), *Anthropology & Medicine* (2015), *Asian Medicine* (2015) and *Medical Anthropology* (in press). His email is laurent.pordie@ehess.fr.

Speakers

Liz Chee has just completed her PhD on the modern use of animal parts and tissues for Chinese medicine. The title of her dissertation is "Re-formulations: How Pharmaceuticals and Animal-Based Drugs Changed Chinese Medicine, 1950-1990". While focusing on Chinese medicine, Liz is interested in cross-border and cultural influences (particularly Japan) in the making of animal-based drugs. She is jointly appointed as a Post-Doctoral Fellow at Tembusu College and the Asia Research Institute (ARI), National University of Singapore, where she will mainly expand her dissertation into a book-length manuscript. Her email is todgyfox@gmail.com.

Anita Hardon is Professor in Anthropology of Health and Social Care and Scientific Director of the Amsterdam Institute for Social Science Research (AISSR), both at the University of Amsterdam. Anita has been involved in comparative studies of health care arrangements, focusing on the global diffusion of contraceptive technologies and modern pharmaceuticals in primary health and family planning programs, on programs to limit the transmission of HIV/AIDS and sexually transmitted diseases and on global efforts to immunize the world's children. This has led to the development of widely used research frameworks and methodologies (*Applied Health Research Manual*, 2001) and high impact publications in journals as *The Lancet*, *Social Science and Medicine* and *Medical Anthropology*. She is the author of several influential books such as *Social Lives of Medicines* (Cambridge University Press 2002) and *Medicines out of Control?* (Aksant 2004). Anita is in charge of a major ERC-funded project, named ChemicalYouth. Her email is ahardon@xs4all.nl.

Por Heong-Hong graduated from the School of Social Sciences, Universiti Sains Malaysia (USM), in 2014. Her dissertation examines the cultural politics of healthcare in post-World War II and post-independence in Malaysia with a focus on the intersection of nation building ideology and healthcare. Her current research interest lies at the convergence of post-colonial inquiry and cultural studies in questions regarding medicine, health and illness, bodies, modernity and nationalism. As a research member for a Malaysian Ministry of Education funded research project on "Traditional Knowledge and Herbal Industry" at the Center for Poverty and Development Studies, University of Malaya, Por also takes an interest in studying how different forces and ideas – therapeutic, religious, scientific, and commercial – come to negotiate with one another in the process of state-led development of traditional and herbal medicine in Malaysia. Her email is floody26@gmail.com.

Wen-Hua Kuo (PhD, MIT 2005) is an Associate Professor at National Yang-Ming University, Taiwan, where he teaches social studies of medicine. A licensed physician and acupuncturist, his work revolves around pharmaceutical regulation and its social impacts in East Asia. His scholarly publications appear in a range of journals crossing several disciplines, including the *Journal of Law, Medicine, and Ethics*, *Drug Information Journal*, *China Quarterly*, and *Social Science & Medicine*. His article "The Voice on the Bridge: Taiwan's Regulatory Engagement with Global Pharmaceuticals" was awarded the David Edge Prize of Society for Social Studies of Science (4S) in 2011. In addition to a book project on ethnicity and statehood in the era of global pharmaceuticals, his current research includes harmonization controversies in East Asian traditional medicines. He serves as a 4S councilor (2012-15); other academic commitments include *Social Studies of Science*, where he serves as an advisory editor, and *East Asian Science, Technology, and Medicine*, one of the few journals bridging between STS studies done in and about this region. His email is whkuo@ym.edu.tw.

Eunjeong Ma holds a Ph.D. in Science and Technology Studies from Cornell University (2008) and is currently a Collegiate Assistant Professor in the Department of Creative IT Engineering at Pohang University of Science and Technology, South Korea. Her teaching and research areas span such multidisciplinary themes as the history of science, technology, and medicine in Asia, gender and technology, emerging technologies, and humanities and engineering. Building on her doctoral and postdoctoral research pertaining to the interrelationship between the state and medicines, she is completing a book manuscript, titled *Fragile Epistemologies and Technologies of Materialities: Drugs, Laws and the State in Postcolonial Korea*. Her email is eunjma@postech.ac.kr.

Karen McNamara is a postdoctoral fellow in the Science, Technology, and Society Research Cluster at the Asia Research Institute of the National University of Singapore. She holds a Ph.D. in anthropology from Syracuse University (2014). Her research in medical anthropology examines the intersection of pharmaceuticals and traditional medicine in Bangladesh, neoliberal governance and care, and health movements. Her book chapter, "Establishing a Traditional Medicine Industry in Bangladesh" was recently published in *South Asia in the World* (2014). She is currently working on articles related to her dissertation research and beginning new research on medical travel in Asia. Her email is kargot@gmail.com.

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