Governance & Circulation of Asian Medicines

22-23 September 2015

www.ari.nus.edu.sg

Convenors:
Céline Coderey
Gregory Clancey
Laurent Pordié
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 on Social Studies of Herbal Pharmaceutical Industry in Asia.

This workshop will explore the processes of production, distribution and circulation of Asian medicines and highlight how in the last fifty years these processes have become increasingly dependent of biomedical know-how, categories and clinical targets. Thus subject to new forms of biopower embodied by national and international regulatory institutions, 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 country or one manufacturer to the other, which are free to implement them or not. Especially manufacturers who aim at the international market try to strictly obey the rules. The others are more neglectful. This space of freedom, often fostered by 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 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.
The workshop intends to explore the following questions:

- How the production and circulation of traditional Asian medicines has been transformed by the expansion of the pharmaceutical market and the increasing dominance of biomedicine?
- How national and international institutions regulate the production and the circulation of Asian medicines? To what extent national regulations conform to the WHO guidelines?
- How the criteria of efficacy, quality and safety proper to traditional medicines differ from those – worldly dominant – of biomedicine? How these conceptions are negotiated through discourses and practices?
- How manufacturers manage to subvert official regulations in order to preserve the specificity and efficacy of their products?
- Is it possible to reach an equal dialogue between biomedicine and traditional medicines in order to establish a sound regulatory scheme without sacrificing the essence of traditional drugs and the health of their users?

REGISTRATION

Admission is free. Kindly register early as seats are available on a first come, first served basis. We would gratefully request that you RSVP to Valerie at valerie.yeo@nus.edu.sg indicating your name, organization, and email address.

CONVENORS

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SECRETARIAT

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<td>10:00 – 10:30</td>
<td>Opening &amp; Welcome Remarks</td>
<td>GREGORY CLANCEY</td>
<td>Asia Research Institute, National University of Singapore</td>
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<td>CÉLINE CODEREY</td>
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<td>LAURENT PORDIÉ</td>
<td>Research Center on Science, Medicine and Society (Cermes3), France</td>
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<td>TYSON VAUGHAN</td>
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<td>10:30</td>
<td>Urban Herbal: The Making of Asian Medicines</td>
<td>AYO WAHLBERG</td>
<td>University of Copenhagen, Denmark</td>
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<td>11:00</td>
<td>Tibetan Medicine at the Juncture of Modernism, Neoliberalism, and Heritage Making</td>
<td>MARTIN SAXER</td>
<td>Ludwig Maximilian University of Munich, Germany</td>
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<td>11:30</td>
<td>About (Asian) Medicines in PR China: Shifts in Epistemology and Therapeutic Practice, Governance and Regulations</td>
<td>EVELYN MICOLLIER</td>
<td>Institute for Research on Development (IRD), Vientiane, Laos</td>
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<td>Panel 2 – Regulation Policies and Their Implementations</td>
<td>FANG XIAOPING</td>
<td>Nanyang Technological University, Singapore</td>
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<td>13:30</td>
<td>WHOse Guidelines Matter? The Politics of Regulating Traditional Medicine in Bangladesh</td>
<td>KAREN MCNAMARA</td>
<td>National University of Singapore</td>
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<td>14:00</td>
<td>Modernizing Traditional Medicines in Java: Regulations Production and Distribution Networks</td>
<td>SEBASTIANUS NAWIYANTO</td>
<td>Jember University, Indonesia</td>
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<td>POR HEONG HONG</td>
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<td>Panel 3 – The Social and Material Lives of Individual Drugs</td>
<td>CATHERINE SMITH</td>
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<td>Medicines into the Circulation of Global Pharmaceuticals</td>
<td>WEN-HUA KUO</td>
<td>National Yang-Ming University, Taiwan</td>
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<td>16:30</td>
<td>A Social History of Safety: <em>Cynanchum Wilfordii</em> and EstroG-100</td>
<td>EUNJEONG MA</td>
<td>Pohang University of Science and Technology, Korea</td>
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### 23 SEPTEMBER 2015 (WEDNESDAY)

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<td>Negotiating Medical Efficacy in the Context of an Emerging Pan-national Medicine</td>
<td>CÉLINE CODEREY</td>
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<td>Unqualified. The Heterodox Realm of Pharmaceutical Practices in Cambodia</td>
<td>LAURENT PORDIÉ</td>
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<td>ANITA HARDON</td>
<td>University of Amsterdam, The Netherlands</td>
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<td><strong>PANEL 5 – CROSSING BOUNDARIES: STATUS, PRODUCTS, AND PRACTICES</strong></td>
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<td>ARIELLE A. SMITH</td>
<td>Research Center on Science, Medicine and Society (Cermes3), France</td>
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<td>13:30</td>
<td>Shark Liver Oil and Bear Bile Tea: How “Health Products” Reformulated the Boundary between Food and Pharmaceuticals</td>
<td>LIZ CHEE</td>
<td>National University of Singapore</td>
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<td>14:00</td>
<td>Converting Crude Herbs into Therapeutic Formulations in the Pharma Industry</td>
<td>VIJAY SINGH CHAUHAN</td>
<td>Ayurvedic Pharma Industry, India</td>
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<td>LAURENT PORDIÉ</td>
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Urban Herbal: The Making of Asian Medicines

Ayo WAHLBERG | University of Copenhagen, Demark
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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?

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

Martin SAXER | Ludwig Maximilian University, Munich, Germany
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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?
About (Asian) Medicines in PR China:
Shifts in Epistemology and Therapeutic Practice, Governance and Regulations

Evelyne MICOLLIER | Institute for Research on Development (IRD), University of Montpellier, Laos
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Even though an on-going process for almost one century by some specifics, ‘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. In 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. Marketing strategies and better compliance with international guidelines promoted by the WHO and to national guidelines of the New Health Reform, explain in part recent changes in medicines regulatory framework, assessing a governance shift. The main objective is to inform about transformations in nature, status and regulations of Asian medicines in China. The first thematic line is about shifts in medical epistemology and practices: I will introduce social, economic and scientific uses of China medicine in China; explain governance issues surrounding the heated debate in the 2000s China about therapeutic practice and status of Chinese medicine in the public healthcare system; discuss issues regarding the circulations of Chinese medicines. The second thematic line will focus on shifts in regulation: the regulatory framework is situated at the core for understanding the whole picture about the nature, status and circulation of medicines because it structures the international trade in pharmaceuticals. 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.

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

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

Sebastianus NAWIYANTO | University of Jember, Indonesia
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Traditional medicine in Indonesia is continuously 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 parties respond to 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?

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
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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, scientific, and commercial—play out in the process of negotiating safety and identity of herbal products. The questions we try to answer include: (1) “how does the state comprehend safety differently from the herbal product producers/distributors/peddlers?”, (2) “how does different comprehension 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 herbal sector and its products?”
Medicines into the Circulation of Global Pharmaceuticals

Wen-Hua KUO | National Yang-Ming University, Taiwan
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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

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

Céline CODEREY | Asia Research Institute, National University of Singapore
ariceli@nus.edu.sg

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.

Unqualified. The Heterodox Realm of Pharmaceutical Practices in Cambodia

Laurent PORDIÉ | Research Center on Science, Medicine and Society (Cermes3), France
laurent.pordie@ehess.fr

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.
Baby-face: The Asian Travel of Filipino Skin Whitening Products

Anita HARDON * and Michael TAN | University of Amsterdam, The Netherlands
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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 highlight the 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 countries in Asia. 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.

Negotiating Standards and Authority in the (Bio)polis

Arielle A. SMITH | Research Center on Science, Medicine and Society (Cermes3), France
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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 (bāng). 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 dis-junctures 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.
Shark Liver Oil and Bear Bile Tea: How “Health Products” Reformulated the Boundary between Food and Pharmaceuticals

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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.

Converting Crude Herbs into Therapeutic Formulations in the Pharma Industry

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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.
ABOUT THE SPEAKERS AND CHAIRPERSONS

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).

Arielle A. SMITH is an ERC-funded postdoctoral fellow at Cermes3 (CNRS-EHESS-Inserm) in Paris. She was awarded a doctorate by the University of Oxford in 2011 on the basis of two years of fieldwork on the political economy of health in Singapore, with particular emphasis on the practice, use, regulation and promotion of Chinese medicine. She is currently revising her dissertation for publication (Berghahn Books, 2015) and researching the transnational and post-national production and transformation of Chinese materia medica vis-à-vis global health discourses.

Ayo WAHLBERG is Associate Professor at the Department of Anthropology, University of Copenhagen. Working broadly within the field of social studies of (bio)medicine, his research has focused on traditional herbal medicine (in Vietnam and the United Kingdom), selective reproductive technologies (in China and Denmark) as well as health metrics (in clinical trials and global health). He is co-editor of Southern Medicine for Southern People: Vietnamese Medicine in the Making (Cambridge Scholars Publishing, 2012), and has published widely on the modernisation of herbal medicine in Vietnam and the United Kingdom. He recently received funding from the European Research Council for a 5-year (2015-2020) project entitled “The Vitality of Disease - Quality of Life in the Making”.

Catherine SMITH is a Postdoctoral Research Fellow in the Science, Technology and Society research cluster of the Asia Research Institute at the National University of Singapore. Catherine is an anthropologist with a special interest in the relationship between medicine, the body and socio-political change. Her doctoral research explored the ways that conflict survivors in Aceh, Indonesia, have taken up the globalised concept of trauma and incorporated it into everyday healing practices and political imaginaries. Catherine also has an interest in global public health, and has carried out applied research and consultancies on the social and political dimensions of malaria in the Asia Pacific, especially in relation to migration and social inequality. In addition to these ongoing projects, at NUS Catherine will continue to develop her research into medicine and socio-political change in the region through a new project exploring the practice of Chinese medicine in Medan, Indonesia.

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.
Eric KERR is Postdoctoral Research Fellow in the Science, Technology & Society cluster at the Asia Research Institute, Lecturer in the Department of Philosophy, and Fellow of Tembusu College, National University of Singapore. He writes primarily on the philosophy of technology and epistemology, with a focus on petroleum engineering. He is currently working on issues of risk, safety, expertise, responsibility, evidence, artefacts, perception and cognition based on his philosophical research and fieldwork with engineers in Thailand. Eric received his PhD from the University of Edinburgh in 2013 and has been a visiting researcher at the University of Vienna and TU Delft.

Eunjeong MA holds a PhD 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*.

Evelyne MICOLLIER is a tenured Research Fellow at the French Institute for Research in Development (IRD), IRD UMI 233, Inserm U1175, Montpellier University. She is a social anthropologist specialized in East and South-East Asia. Holding degrees and experience in three academic domains (Anthropology, China Studies, TCM), she is conducting long-term research at their “cross-roads”. She has been posted in Beijing to coordinate a programme in social sciences, IRD-Peking Union Medical College/Chinese Academy of Medical Sciences/Tsinghua University (2006-2011): the lines of research she investigated more specifically were about medical research in biomedicine and in traditional medicine, research ethics, global health and its implications. Evelyne is currently developing projects in South-East Asia and in transnational China. She recently published articles on medicine-s at the cross-roads (pharmaceutical innovation, medical research in Chinese medicine; dissemination and globalization of Chinese medicine-s) and on sexuality, gender, HIV vulnerability and governance issues.

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). Assoc Prof Clancey 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. Assoc 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* (Berkeley: U. of California 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* (Boston: Houghton-Mifflin, 1998) and *Historical Perspectives on East Asian Science, Technology and Medicine* (Singapore: Singapore U. Press & World Scientific 2002).

Heong-Hong POR 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.
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 PhD 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.

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.yif.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).

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.

Martin Saxer was a Clarendon Scholar at Oxford and received his doctorate in 2010. His publications include Manufacturing Tibetan Medicine. The Creation of an Industry and the Moral Economy of Tibetanness (Berghahn 2013) and “A Goat’s Head on a Sheep’s Body? Good Practices for Tibetan Medicine” (Medical Anthropology 2012). He was a Postdoctoral Fellow at the Asia Research Institute, National University of Singapore, and a Marie Curie Research Fellow at Ludwig Maximilian University of Munich. He is currently leading a 5-year research project entitled “Remoteness & Connectivity: Highland Asia in the World”, funded by a European Research Council grant (2015-2020). Martin conducted extensive fieldwork in Siberia, Tibet and Nepal since 2003. He directed two feature length documentary films, including Journeys with Tibetan Medicine (see www.anyma.ch/journeys) and runs the visual ethnography blog the other image (www.theotherimage.com).

Sebastius Nawiyanto holds a PhD in History from The Australian National University (2007) and is a lecturer at the Department of History, Faculty of Letters, University of Jember, East Java, Indonesia. His teaching and research interests cover environmental history of Indonesia, environmental movement, indigenous medical system, agricultural and economic history. His publication include Agricultural Development in a Frontier Region of Java (Galang Press, 2003), The Rising Sun in a Javanese Rice Granary (Galang Press, 2005), The Development of Plantations in Jember during the Late Colonial Period (Lembah Manah, 2008), The Rising Sun and The Bamboo Curtain: Japanese-Chinese Trade Competition in Java during the 1930s and 1990s Crises (Jember University Press, 2010), Pangan, Makan dan Ketahanan Pangan: Konsepis Kultural Etnis Jawa dan Madura (Galang Press, 2011), Pengantar Sejarah Lingkungan (Jember University Press, 2012), and Sejarah Nasionalisasi Aset-Aset BUMN (Indonesian Ministry of BUMN, 2014).
Tamara LYSAGHT is an Assistant Professor at the Centre for Biomedical Ethics at the National University of Singapore. Her research interests lie broadly in the ethical, sociopolitical and regulatory issues surrounding stem cell science and the clinical translation of regenerative medicines and genomics. She has expertise in empirical ethics and experience in using both qualitative and quantitative research methods. She has worked on policy issues with the Ethics Committee of the Human Genome Organisation, the Technical Working Group on Ethics at the World Health Organization and the Translational Clinical Research Programme of the Institute of Mental Health in Singapore, and the Human Health Division of the International Atomic Energy Agency. She is currently working on the ethics and regulation of cell therapies and translational medicine, genomics and precision medicine, and the ethics of zoonotic disease management in Singapore.

Tyson VAUGHAN is a Postdoctoral Research Fellow in the Asian Urbanisms and Science, Technology & Society clusters at the Asia Research Institute of the National University of Singapore. He studies public engagement with technoscience, the social construction of expertise, and democratic governance of “envirotechnical” risk and sociotechnical order. Much of his work is ethnographically grounded in the context of post-disaster recovery in Japan. He holds a PhD in Science & Technology Studies from Cornell University.

Vijay Singh CHAUHAN is a Doctor in Ayurveda, trained at the Gujarat Ayurveda University, Jamnagar. After teaching Ayurveda in Mumbai, he became the first person with Ayurvedic qualifications to enter the pharmaceutical industry in India, joining companies such as Lupin, Gufic and Ranbaxy. Various drugs were developed and patented under his guidance. He still transmits ayurvedic knowledge in India, the US and France. Dr Vijay Chauhan is a Scientific Advisor to Sunwave Pharma in Romania, the fastest growing herbal company in Eastern Europe.

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.

Xiaoping FANG is Assistant Professor of Chinese History in Division of Chinese of the Nanyang Technological University. He received his PhD in History from the National University of Singapore (NUS), where he majored in modern China and the history of science, technology and medicine in East Asia from 2002 to 2008. He studied and worked at the Needham Research Institute of the University of Cambridge, UK (2005-2006), the Asia Research Institute of the NUS (2008), and the China Research Centre of the University of Technology, Sydney, Australia (2009-2013). His current research interests focus on the history of medicine, health and disease in twentieth-century China. He is the author of Barefoot Doctors and Western Medicine in China (Rochester, NY: University of Rochester Press, 2012 & 2015).