The Pharmaceutical Assemblage

Rethinking Sowa Rigpa and the Herbal Pharmaceutical Industry in Asia

by Stephan Kloos

Cutting-edge anthropological research on pharmaceuticals aims to trace the connections that link our health and subjectivity, via the drugs we ingest, to contemporary forms of science, governance, and market practice. Yet this research is mostly limited to biomedical pharmaceuticals, ignoring the vast and rapidly growing “traditional” pharmaceutical industry, which connects contemporary forms of culture, capitalism, and politics in arguably even more interesting ways. Addressing this gap, this programmatic essay proposes the concept of the “pharmaceutical assemblage” as a way to assess the traditional pharmaceutical industry as part of Asia’s growing knowledge industry sector and the global pharmaceutical nexus. Taking the emerging Sowa Rigpa (also known as Tibetan medicine) industry as a particularly illustrative example, the article outlines an interdisciplinary approach to study this industry as a larger, transnational entity with its own role and dynamics. Identifying and discussing four major domains of the Sowa Rigpa industry—raw materials, drug-manufacturing processes, the market, and intellectual property rights—this article argues that the concept of the pharmaceutical assemblage can generate a much-needed bigger picture of traditional medicine and a fresh perspective on the confluences of culture, health, economy, governance, and the environment in contemporary Asia.

Asia’s dramatic entry into the global biotechnology and pharmaceutical industry during the past two decades has generated considerable scholarly interest and public debate. China’s and India’s rapidly growing pharmaceutical markets are already the world’s third largest in terms of value and volume, respectively, while South Korea, Taiwan, Thailand, Singapore, and Malaysia have established themselves as vibrant biotechnology hubs (Ong and Chen 2010; Wahlberg 2012). Meanwhile, however, very little attention has been paid to the similarly fast-growing “traditional” pharmaceutical industry in the region, despite an increasing demand for so-called complementary and alternative pharmaceuticals worldwide (cf. Pordié and Hardon 2015). With herbal and traditional medicines emerging from their previously marginal position to become a popular and lucrative alternative health resource, it is clear that they need to be understood and studied as an integral part of Asia’s innovative knowledge industry and its growing economic power. Reformulated in modern laboratories (Pordié and Gaudillière 2014a) and mass-produced in increasingly transnational industries for the global capitalist health-care market (e.g., Bode 2015; Hsu 2015; Pordié 2015), traditional medicine has not only become decidedly modern but also plays an important part in current transformations of health care around the world.

This is true not only for the large, well-established industries of traditional Chinese medicine (TCM) and the Indian Ayurveda, Unani, and Siddha sector but also for the comparatively small industry of Tibetan medicine—also called Sowa Rigpa.

1. Market reports (e.g., Ibisworld.com 2016) put TCM’s annual growth rate at an average of 15% between 2011 and 2016, while Dang et al. (2016) report the overall sales value of TCM as exceeding 120 billion USD by the end of 2014, representing 31% of the total pharmaceutical industry market in China. No exact data exist on the Indian traditional medicine industry, but projections from 2010 assume a continuing annual growth rate of 10% to 15% until 2020 (Krishnakumar 2010), and a recent estimate by Deshpande (2015) places its annual sales value at over 8 billion USD.

2. The World Health Organization (WHO 2005) estimates that 60–80% of people in the Global South rely primarily or exclusively on traditional medicines to meet their primary health care needs and that a similar percentage of people in industrialized countries consume herbal or traditional pharmaceuticals.

3. Of course, the modernization of traditional Asian medicines began long before the introduction of pharmaceutical mass-production and re-formulation regimes (e.g., Attevell 2005; Leslie 1974; Prakash 1999; Taylor 2005), which mark only the latest, but perhaps most striking, stage of this uneven and varied development.

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Rigpa”—that is currently emerging in China, India, Mongolia, and Bhutan. Taking the transnational Sowa Rigpa industry as an illustrative example, this programmatic essay calls for a new approach to address our lack of a broader understanding of the traditional pharmaceutical sector in Asia and elsewhere. I argue that this approach must take seriously the process of pharmaceuticalization as a defining but understudied moment in the ongoing modernization of traditional Asian medicines. Combining such a focus on pharmaceuticalization with the notion of the assemblage, I propose the “pharmaceutical assemblage” as a novel conceptual tool that enables us to generate both detailed insights into and a much-needed bigger picture of the emerging Sowa Rigpa industry as well as the traditional pharmaceutical market more generally. In its second part, this essay outlines three methodological-analytic steps involved in applying the pharmaceutical assemblage concept and discusses how this approach allows us to make visible, explore, and engage emerging realities, such as the Sowa Rigpa industry, in meaningful ways. Although the Sowa Rigpa pharmaceutical assemblage constitutes the main subject of this essay, its focus is not ethnographic per se. Rather, its aim is to reframe the way we look at traditional Asian medicines and thus serve as a prolegomenon to future work on Asian pharmaceutical industries.

While the concepts of pharmaceuticalization and the assemblage will be discussed at length below, a brief note on terminology may be in order here. Throughout this essay, the term “pharmaceutical” is used to refer to the science and technique of preparing and dispensing drugs in the most general sense. A “pharmacy,” therefore, is a place where medications are compounded, prepared, and dispensed, which is indeed the common usage of the English term among practitioners and stakeholders of traditional medicine in much of Asia. Derived from the Greek pharmakon—meaning drug, medicine, or poison—and used in the English language since the European Renaissance, the term’s origins far predate those of modern chemistry or biomedical pharmacology and can thus be used to adequately describe both biomedical and traditional practices, sites, and objects. The term “industry,” finally, is defined as the domain of economic activity concerned with the processing of raw materials and the mass production of goods. This may take place in factories or, in the case of cottage industries, a network of smaller production facilities. In either case, however, its crucial quality is the scale and commercial nature of production, distinguishing it from other forms of production, such as the individual manufacture of medicines purely for noncommercial purposes.

Sowa Rigpa

Perhaps the most striking indication that Sowa Rigpa can be understood as an assemblage is provided by the first of a series of medical thangkas (Tibetan scroll paintings) that were originally commissioned by the fifth Dalai Lama’s regent Desi Sangey Gyatso in the late seventeenth century (Gyatso 2015), which illustrates the root tantra of Tibetan medicine’s standard treatise, the Gyüshi (Men-Tsee-Khang 2008). On the painting (fig. 1), titled “Palace of the Buddha Bhaisajyaguru, Master of Remedies” (Parfionovitch, Meyer, and Dorje 1992:173–174), we see the “Medicine Buddha” in his palace made of various kinds of precious metals and gemstones, teaching the science of healing to his four retinues: gods of the Buddhist pantheon; Hindu gods; Buddhist adherents, including Bodhisattvas; and non-Buddhist hermits from India and beyond. The palace is located in Sadarśana, the “City of Medicine” known to Tibetans as Tanadug, surrounded by a forest of medicinal trees and, further afield, mountains to the north, south, east, and west. Each of these places is home to different pharmaceutical substances used in Sowa Rigpa—plants, minerals, animals, and spring waters—whose specific properties correspond to their location (e.g., cooling ingredients on the northern mountains, warming ingredients in the south). This heterogeneous array of pharmaceutical substances as well as otherwise unrelated gods, human beings, mountains, buildings, and texts is assembled, given structure and coherence in the form of a mandala that is held together by the Medicine Buddha in the center. The actual multidimensionality of this mandala is rendered two dimensional—but not lost—through the expert arrangement of colors on canvas. Like the root tantra, which is said to contain the entire Tibetan science of healing for those who can understand it properly, the thangka aims to visualize Sowa Rigpa in its entirety.

Sowa Rigpa, as we know it today, was assembled from elements of Indian, Chinese, Persian, and Central Asian as well as indigenous Tibetan medical knowledge from the seventh century onward (Men-Tsee-Khang 2008:i–xv; Yonten, Rigzin, and Russell 1989). By the time it was codified in the Gyüshi by Yuthog Yonten Gonpo in the twelfth century (Yang Ga 2014), this assemblage had stabilized into a coherent entity that, despite its different schools and local traditions, was recognizable and thus depictable as one larger whole. By the fifth Dalai Lama’s reign and the commissioning of the above-mentioned thangka in the late seventeenth century, Sowa Rigpa had further solidified and consolidated itself not simply as a unique medical tradition but also as a formidable cultural and political force reaching far beyond Central Tibet (Garrett 2007; Gyatso 2004; Schaeffer 2003). Although by no means static, and continuing to assemble its pills and powders from various medical ingredients of different provenances, Sowa Rigpa thus gradually
transformed into a relatively stable apparatus with its own body of knowledge, pharmacopoeia, professional institutions, and local lineages. Indeed, it is this apparatus that, as one of Asia’s great medical traditions, has been the object of ongoing scholarly research and publications since the late twentieth century.

Over the past two decades, however, we have begun to witness an entirely new kind of assemblage: the emergence of a transnational Sowa Rigpa industry in China, India, Mongolia, and Bhutan. During the twentieth century, Sowa Rigpa was strongly impacted by fundamental sociopolitical and economic transformations in Asia, beginning with the collapse of the Russian and Chinese empires and the subsequent rise of communism; through Stalinist purges in Mongolia, Mao’s annexation of Tibet, the Cultural Revolution, the Dalai Lama’s flight into exile, and the Tibetan nationalist project in India; up to Bhutan’s state-directed alternative development strategies and the entire region’s recent economic growth. While the transformations that Sowa Rigpa underwent throughout this eventful period have been described in detail elsewhere (e.g., Janes 1995;
Kloos 2008, 2016a; Pordié 2008), it is noteworthy that they followed similar patterns and time frames in all four countries despite their political differences and weak relations of exchange. Thus, Sowa Rigpa had been radically curtailed through official repression for several decades in the early (Mongolia) or mid (China, Tibet) twentieth century, only to be transformed and expanded with state support from the 1980s and 1990s onward through its commercialization, pharmaceuticalization, and globalization. Taken together, these processes have reassembled Sowa Rigpa in the most fundamental way since its institutionalization in Tibet, culminating in the currently emerging transnational Sowa Rigpa industry.

Following the foundation of a number of private Tibetan pharmaceutical companies in China during the 1990s, perhaps the most significant event marking the beginning of a Sowa Rigpa pharmaceutical industry was the introduction of a new Tibetan Drug Administration law in 2001. This not only required the conversion of existing Tibetan hospital pharmacies into commercial enterprises participating in the larger domestic pharmaceutical market but also introduced good manufacturing practices (GMPs) and a nationwide system of drug registration (Saxer 2013:35). Although problematic in many ways, this law and its subsequent iterations led to a dramatic industrial growth of Tibetan medicine, with Xinhua (2015) recently reporting a total sales value of 201 million USD generated by 18 Tibetan pharmaceutical companies, two of them listed on the Shanghai/Shenzhen Stock Exchange. While the increasing control of large Chinese investors triggers serious conflicts over Tibetan medicine’s ownership, and huge profit margins lead to fierce competition over market shares, it is the image of a seemingly successful transformation of traditional knowledge into a booming industry that has caught the attention of other Sowa Rigpa stakeholders in China’s neighborhood.

In Mongolia, for example, the industrialization of Sowa Rigpa—more commonly referred to as traditional Mongolian medicine (TMM) there—is driven by a collusion of state policies and corporate interests, mandating the implementation of GMP and costly drug-registration procedures for all TMM producers. As Mrs. Tserendulam Luvsandorj from Monos, Mongolia’s largest biopharmaceutical company, told me in November 2014 in Ulaanbaatar: “TMM is a growth market, and Monos aims to be market leader. We are currently building the first WHO-GMP certified factory for TMM in Mongolia, which will also be the biggest in the country. Once it’s operational, it is possible that other TMM factories will close, because the new regulations are difficult to implement for others with less resources.” Deputy Health Minister of Mongolia, Dr. Amarsanaa Jazag, concurred as he explained the government’s new TMM policy: “They [existing TMM factories] will need a few million dollars, yes. If they don’t upgrade, they will have to shut down. . . . Our goal is an export-oriented TMM industry.” While the six existing manufacturers of TMM are currently scrambling to implement (or challenge, where possible) these new regulations, and major new players like Monos prepare to enter the field, some, like Dr. Boldsaikhan Badamjav, the head of the Mongolian Association for Traditional Medical Sciences, look to India for alternative ways of development: “I think small production is better than large factories, which are only for business. But this is not allowed by the government. If you look at the private pharmacies in India, that’s how it should be.”

Indeed, besides the large institution of the Dharamsala Men-Tsee-Khang, the bulk of Sowa Rigpa production in India takes places in a cottage industry of small, Tibetan-owned pharmacies. Yet, as Dr. Namgyal Qusar—the owner of one of them—told me in a conversation in October 2015 at his clinic near Dharamsala, the absence of any (state) guidance was not necessarily a good thing: “Nobody knows in what direction Tibetan medicine is going, or should go. But it’s definitely becoming more commercial, and we have limited knowledge and resources to deal with this new situation. What we need is training and guidance in how to do business, about pharmaceutical production and quality control, how to get herbs, how to cultivate plants, and so on. But there is no support from anyone.” Under these conditions, Dr. Ngawang Soepa from the Men-Tsee-Khang agreed, “it’s very difficult to make medicines. Therefore, although there is a great demand, we have only little supply.” In the absence of any official exile Tibetan strategy or vision regarding the Sowa Rigpa industry, producers are left to fend for themselves, thus slowing the industry’s development and, according to Dr. Namgyal Qusar, potentially threatening Tibetan control over it in the long run.

Sowa Rigpa stakeholders in India, China, Mongolia, or Bhutan agree that any such policy needs to be based on information regarding Sowa Rigpa’s development on an international level. The problem, however, is that such information does not exist. Despite the above-quoted media articles celebrating Tibetan medicine’s growth and value in China, the Health Bureau of the Tibetan Autonomous Region does not know the size of the Tibetan pharmaceutical industry even within its own jurisdiction. In Mongolia, business insiders consider the government’s detailed statistics of the TMM industry as inaccurate by up to 30% because of underreporting, while in India, most producers do not even keep accounts. Leaving aside numbers, existing qualitative data on Sowa Rigpa’s industrial development similarly falls short of providing an understanding of what is happening on a larger scale—that is, of connecting heterogeneous yet related ethnographic insights into one transnational phenomenon. In the words of Dr. Tsering Thakchoe, former chairman of the Dharamsala-based Central Council for Tibetan Medicine: “It is important to know about Tibetan medicine’s situation in other Asian countries and the West. We need data on its practice and development in all those places in order.
to make our own policy. We need an understanding of the big picture.”

There are, of course, a number of studies in medical anthropology and related fields that have begun to scrutinize the transition of traditional Asian medicines to modern industries and that have contextualized traditional Asian medicines within the larger frameworks of globalization, modernity, or nationalism. Thus, Vincanne Adams (e.g., Adams 1999, 2001, 2002a, 2002b; Adams and Li 2008) and Craig Janes (e.g., Janes 1995, 2001) have pioneered medical anthropological work on the modernization of Tibetan medicine, which led to more recent studies on the currently emerging Sowa Rigpa industry in various places (Blaikie 2015; Craig 2011, 2012; Saxer 2013). In the Indian context, Charles Leslie’s groundbreaking early work on the modernization and professionalization of Ayurveda (Leslie 1973, 1974) initiated a steady interest in the economic, political, scientific, and cultural processes that have led to the emergence of the Ayurvedic industry (Banerjee 2009; Bode 2008; Gau’dillière 2014; Harilal 2009; Nichter 1996). The pharmaceutical industry of Chinese medicine, on the other hand, has received little if any direct scholarly attention despite its large size, and it is usually treated as epiphenomenal to its clinical practice or education (e.g., Hsu 2008; Scheid 2002; Schroeder 2002; Zhan 2009). The importance of this collective body of literature to understanding current developments of traditional Asian medicines cannot be underestimated. Yet, as far as traditional Asian pharmaceutical industries are concerned,7 we still lack what Dr. Tsering Thakchoe calls “the big picture.”

Contrary to the often-heard argument that all we need is more (of the same) work on the topic, I argue that this knowledge gap is not simply a consequence of “not enough research.” Rather than accumulating an ever-greater wealth of data on particular parts and aspects of a phenomenon, in the expectation that this will somehow automatically produce a larger understanding of the whole, focusing on the phenomenon in its entirety may be a more promising strategy. To be sure, detailed analyses and fine-grained ethnographic studies at the local level remain of crucial importance, as it is only on the basis of such work that the next step of assembling a bigger picture can be taken. However, this step requires conceptual tools capable of not only exploring the heterogeneous parts and aspects of the traditional pharmaceutical industry but also grasping it as an entity with its own force, shape, and dynamics. I argue that the notions of pharmaceuticalization and the assemblage are central to this endeavor, particularly when brought together in the new approach of the pharmaceutical assemblage.

Pharmaceuticalization

In a conversation about the development of Sowa Rigpa in late 2015, Dr. Ngawang Soepa remarked on the importance of pharmaceuticals: “It is easy to train doctors and open clinics, and there are more and more of them. But without medicines, the doctors and clinics cannot do anything. So the medicine production is crucial, and the pharmacies are at the core of the industry.” Indeed, with Sowa Rigpa’s popularity rising rapidly in India and elsewhere, the greatest challenge today consists in producing sufficient amounts of medicines. He continued: “The director may tell us to produce more of this or that medicine, but it doesn’t work like this, it’s not so easy. For example, if a medicine has 35 ingredients, and only one or two are missing, we cannot make it.” The availability of raw materials being only one limiting factor among several, it is clear that the growing demand for Sowa Rigpa pharmaceuticals far exceeds the current supply, resulting in a perpetual shortage of pills at Men-Tsee-Khang and private Tibetan clinics all over India. As a result, Sowa Rigpa stakeholders like the Men-Tsee-Khang are focusing all their attention on the upgrading and construction of pharmacies to significantly increase production capacities,8 while simultaneously looking to establish new sources and supply chains for raw materials. Although specific contexts differ, the same situation can be observed in all four countries. Clearly, pharmaceuticals and their production, availability, and quality have become the central concern and defining feature of Sowa Rigpa and its development.

This trend of pharmaceuticalization, whereby medicine and health care are increasingly reduced to the material object of the drug and its delivery (cf. Banerjee 2009; Nichter 1996), can be observed not only at the Men-Tsee-Khang but also on a global scale. Patients’ demands for health care today predominantly revolve around the accessibility and affordability of medications (e.g., Biehl and Petryna 2013), and both the herbal/complementary and biomedical pharmaceutical sectors are growing at spectacular rates. Indeed, over the past few decades, pharmaceuticals have come to dominate global health on both the discursive and the policy levels. The initial focus of the World Health Organization (WHO) 1978 Alma Ata Declaration on providing “health for all” through primary health care delivered by rural clinics and barefoot doctors has shifted to an overwhelming emphasis on the availability and quality of drugs (Biehl 2007; Farmer 2001).

Against this global background of pharmaceuticalization, the WHO’s 2008 Beijing Declaration explicitly connects the

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7. This applies to Sowa Rigpa as much as to the TCM, Ayurveda, Unani, and other industries, which, although older and more established, are equally only emerging on the global level. Thus, standards, regulations, and policies targeting these industries are still being negotiated or at an early stage of implementation, and they continue to struggle to gain access to lucrative European and North American markets.

8. While Tsering Thakchoe mostly referred to cross-national economic and policy data on Sowa Rigpa’s industrial development, I expand the metaphor to refer to a larger anthropological inquiry into the Sowa Rigpa industry and its social, cultural, political, economic, environmental, and public health roles in contemporary Asia.

9. For example, in 2015, the Men-Tsee-Khang planned three new pharmaceutical units (in Chauntara, Bangalore, and Salugara) to increase its production capacity by up to a factor of five over the next years. All other Tibetan medical institutions and many private manufacturers are similarly upgrading their production facilities.
unmet objectives of Alma Ata and the United Nations’ Millennium Development Goals with traditional medicine (WHO 2008). By officially acknowledging—and even encouraging—traditional medicine’s role in the provision of primary health care rather than perpetuating its dismissal as an obstacle to health development, the Beijing Declaration articulates a major shift in the official perception and status of traditional medicine (cf. WHO 2002, 2013). At the same time, however, this shift implicitly reduces the rich variety of traditional medical knowledge and practice to mass-produced pharmaceuticals. Thus, the Declaration calls for the development of national policies, standards, and regulations to ensure the “appropriate, safe, and effective use of traditional medicine” worldwide, which directly targets the traditional pharmaceutical industry (cf. Craig 2012: 155). This is particularly relevant for South and East Asian countries, which are at the forefront of industrializing and commercializing traditional medicine, and which are heavily invested in developing new herbal pharmaceutical industries under the label of “tradition.”

In many ways, the Beijing Declaration was the product of the ongoing professionalization (e.g., Leslie 1968, 1973), modernization (e.g., Adams 2001, 2002a, 2007), standardization (e.g., Banerjee 2008; Craig 2011; Shankar, Unnikrishnan, and Venkatasubramaniam 2007) and globalization (e.g., Alter 2005; Wujastyk and Smith 2008) of Asian medicines over the preceding decades. These processes, in turn, are directly connected to the larger dynamics of pharmaceuticalization and the resulting emergence of traditional pharmaceutical industries that are strong enough to be taken seriously by the WHO. However, anthropological literature on traditional medicine has so far paid scant ethnographic and analytic attention to pharmaceuticalization as an overarching trend that links modernization, globalization, and so on across different contexts and medical traditions to international regulations, global health, and capitalism. A serious and sustained focus on pharmaceuticalization would enable us to study Asian medical traditions within the same analytic framework as biomedicine and thereby contribute to a broader yet nuanced understanding of contemporary Asian medicine industries as an important part of what Adriana Petryna and Arthur Kleinman (2006) call the “pharmaceutical nexus.”

There are few things that are as deeply personal yet, at the same time, as strongly connected to global ethical, political, scientific, and economic processes as the drugs we use to cure our illnesses, alleviate our pains, function “normally,” or improve ourselves as human subjects. Cutting-edge research on pharmaceuticals today aims to trace the connections that link our health as individuals and populations, via the drugs we ingest, to contemporary forms of science, governance, and market practice. In the words of Petryna and Kleinman (2006:29), “this is a key moment: the sensibilities of ethics, professional standards, regulatory practices, and consumer and patient protections for this millennium are being defined. The subject of global pharmaceuticals both sets a new field for anthropological research and reframes the questions central to anthropology today.” Although these authors limit their argument to biomedical pharmaceuticals, it is equally valid for the vast field of traditional, herbal, and complementary drugs. Arguably in even more interesting and complicated ways, they too are global and subject to ethical procedures, professional standards, regulatory regimes, innovation practices, and questions of drug safety and efficacy (e.g., Adams 2002b; Gaudilliére 2014; Pordié 2010; Shankar, Unnikrishnan, and Venkatasubramaniam 2007). Thus, Sowa Rigpa and other medical traditions have become important economic resources and fields of innovation in various Asian communities, where alternative modernities and national imaginaries are shaped and negotiated (e.g., Kloos 2011). Through pharmaceuticalization, these medicines’ economic, cultural, and political function is increasingly concentrated in their material products (pills, powders, teas, creams, and so on), which work simultaneously as commodity fetishes and political sites of cultural production (Kloos 2012). The traditional pharmaceutical industry thus presents a valuable analytic lens through which currently unfolding medical, cultural, political, and economic developments in large parts of Asia become accessible to critical ethnographic observation.

A contemporary anthropological engagement of pharmaceuticals can help us understand not only the “lives” of individual pharmaceuticals (Appadurai 1986; Whyte, van der Geest, and Hardon 2002) and the social transformations surrounding them on the local or regional scale (e.g., Nichter 1996; van der Geest 2011; van der Geest, Whyte, and Hardon 1996) but also questions of global governance and larger processes of sociocultural, political, and economic change that are increasingly articulated through the pharmaceutical industry and market (Lakoff 2005; Petryna, Lakoff, and Kleinman 2006; Rose 2007). For example, the production, quality, and efficacy of drugs is not merely determined by local manufacturers or negotiated in clinical practitioner-patient interactions but is also the product of national regulations and global technoscientific standards that are themselves directly linked to a capitalist market logic and transnational political agendas (Craig and Adams 2008; Petryna and Kleinman 2006; Pordié 2010; Sunder Rajan 2012). The pharmaceutical industry can thus be seen as an assemblage of global, national, and local discourses, technologies, materials, and interests, which cannot be compartmentalized into distinct spatial spheres or reduced to linear flows and isolated processes. This holds especially true for Asian traditional pharmaceuticals.

Assemblage

Originally used to describe the technique of combining elements of previously existing artworks or objects into a new entity, typically involving different materials, the term assemblage was first used in the fine arts by Jean Dubuffet in the
1950s. Gilles Deleuze and Felix Guattari adopted the concept in *Mille Plateaux* (1980), using it to refer, in Saskia Sassen’s words, to “a contingent ensemble of practices and things that can be differentiated (that is, they are collections of similar practices and things) and that can be aligned along the axes of territorality and deterritorialization” (Sassen 2008:5). While in Deleuze and Guattari’s writing, assemblages constitute only one of several concepts—such as strata, milieus, or rhizomes—designed to grasp reality, Manuel DeLanda (2006) reinterprets Deleuze’s assemblage as a universally applicable social theory. Notably, DeLanda’s assemblage theory proposes a “realist social ontology” as an alternative to totalizing and essentializing analytic frameworks, concerned with accounting “for the synthesis of the properties of a whole not reducible to its parts” (DeLanda 2006:4, emphasis in original). In contrast to such complex notions of the assemblage, some contemporary scholars, like Latour (2005), Sassen (2008), and Zhan (2009), use the term largely in a descriptive way, roughly equivalent to “ensemble” or “constellation,” while using different concepts to make related theoretical claims.

In between these poles of abstract postmodern philosophy, classical social theory, and pure description, a fourth definition of assemblages appears to be most suitable for understanding Asian traditional pharmaceutical industries. Thus, Paul Rabinow (1999, 2003), Stephen Collier and Aihwa Ong (Collier and Ong 2005), and Anna Tsing (2015) take the assemblage as a conceptual tool to address contemporary problems in new ways. “From time to time, and always in time,” Rabinow (1999:180) writes, “new forms emerge that catalyze previously existing actors, things, temporalities, or spatialities into a new mode of existence, a new assemblage, one that makes things work in a different manner and produces and instantiates new capacities.” In Collier and Ong’s words (2005:12), “an assemblage is the product of multiple determinations that are not reducible to a single logic. The temporality of an assemblage is emergent. It does not always involve new forms, but forms that are shifting, in formation, or at stake.” Relocating the concept from Deleuze’s and DeLanda’s predominantly territorial register to the temporal domains of the contemporary and indeterminacy, these authors characterize the assemblage mainly by its quality of emergence and its lack of closure. Most recently, Anna Tsing similarly defines assemblages as “open-ended gatherings [that] show us potential histories in the making” (Tsing 2015:23), while at the same time conceptually regrounding them in ethnographic space. As a kind of intermediate, experimental matrix of heterogeneous elements that gather in a particular place, the assemblage is thus territorial but also open-ended and, significantly, not enduring; either it congeals into a more structured and stable form or it disaggregates. In contrast to DeLanda’s assemblage theory, it does not lend itself to any universal claims: not everything is an assemblage, nor does the assemblage explain everything.

Indeed, this notion of assemblage cannot be described as theory in its classical sense at all. Referring to particular forms of ethnographic reality that, to be grasped and understood, require certain modes of anthropological analysis, it doubles as ontological entity and analytic-methodological approach, breaking the conceptual and temporal barrier between observer and observed (Chakrabarty 2000; Fabian 1983). As such, it does not try to explain phenomena (away) as the result of something else (like culture, society, politics, or the economy) but rather seeks to identify and engage different emergent worlds as singularities (cf. Latour 2005:13; Rabinow 1999:180; Zhan 2009). Similar concepts sharing this analytic sensibility and scholarly ethics, such as Bruno Latour’s actor-network theory or Mei Zhan’s “woring,” focus on rethinking existing “maps” of well-established fields like TCM or modern science by questioning how they are continuously mapped and remapped across different contexts (Zhan 2009:22). The assemblage, on the other hand, is more concerned with (co-)producing previously non-existent maps of newly emerging realities that occupy as-yet-uncharted ontological territories, like the Sowa Rigpa industry.

The assemblage thus appears as the ideal conceptual tool to generate a bigger picture—a map, if you will—of new and otherwise invisible entities that have not yet stabilized as more permanent sociocultural, political, economic, or medical apparatuses. Emerging realities, such as traditional pharmaceutical industries, are special kinds of assemblages, because they are contingent upon the particular yet global dynamic of pharmaceuticalization, and because they revolve around the specific object of the drug: they are pharmaceutical assemblages. By this term, I refer to the heterogeneous, contingent elements that come together, through the process of pharmaceuticalization, in the form of the traditional pharmaceutical industry and contemporary health care. Going beyond simple description, the concept of the pharmaceutical assemblage enables the investigation of new phenomena that arise as a consequence of the globally occurring pharmaceuticalization of health care and life itself and which cut across—escape, even—conventional analytic frameworks such as culture, society, politics, the market, or nation-states. As a method, furthermore, it allows not only the integration of different kinds of interdisciplinary data in one coherent investigation but also the understanding of, for instance, Sowa Rigpa’s pharmaceuticalization as one coherent process across national and institutional borders, without losing sight of its ethnographic heterogeneity. Sharpening the focus on particular phenomena, such as the Sowa Rigpa industry, which arise within the general context described by the pharmaceutical nexus, the utility of the pharmaceutical assemblage thus lies in identifying and mapping new pharmaceutical entities by asking how, and with what consequences, they emerge as certain elements come together at a specific time and place.11

11. In short, the pharmaceutical assemblage builds on the insights of the pharmaceutical nexus but, in a crucial next step, focuses on particular assemblages within the larger global pharmaceutical context.
cellence. Emerging as different, often preexisting elements that do not necessarily follow a single logic—temporalities, territories, processes, values, knowledges, technologies, people, and things—freshly come together as a larger entity, this transnational industry is eminently new and open-ended, just as Sowa Rigpa itself was a millennium ago, before it consolidated as a more stable apparatus. Yet what makes its contemporary in-

emergence is the modern dynamic of pharmaceuticalization in the context of global capitalism. Shining spotlights on this industry on a re-

gional level, Sienna Craig (2011, 2012) and Martin Saxer (2013) provide important insights into its development in the Tibetan regions of China. Similarly, there exists strong evidence that points to early phases of Sowa Rigpa’s industrialization in India (Blaikie 2009, 2012; Kloos 2008, 2013, 2016). While little to no work exists on the topic in Mongolia and Bhutan as yet, some scholarly, policy and media reports at least provide suf-

cient overview to conclude that these countries, too, are ac-

tively engaged in creating a Sowa Rigpa industry from scratch (Bode 2009; Mongolian Ministry of Health 2012; Pitschmann et al. 2013; D. Wangchuk 2005, 2008; P. Wangchuk 2008). Until very recently, no study has attempted to analyze the Sowa Rigpa industry across these four national contexts, but it is clear that its development is ongoing and open-ended, calling for real-time ethnographic investigations of the contemporary.

We do not know yet whether, in contrast to older and larger Asian pharmaceutical industries such as Ayurveda or TCM (which, however, are also still emerging on the global level), the Sowa Rigpa pharmaceutical assemblage will be able to estab-

lish itself as a durable industry and, if so, what form it will take.

What is certain already, however, is that this assemblage is transnational, regardless of the various nationalist claims and identities attached to it. The products of the Sowa Rigpa in-

dustry—whether in the form of pills, powders, decoctions, or teas—are emerging global pharmaceuticals. Their ingredients are sourced from throughout East, Central, and South Asia and processed in modern factories in China, India, Mongolia, and Bhutan according to centuries-old Tibetan expertise and knowledge that has been adapted to local environmental, socio-economic, and political contexts. The products are distrib-

uted through both formal and informal networks not only within the Tibetan-influenced areas of Asia but also around the world, in Belgium and Brazil as much as in Kazakhstan and Kenya. As these pills and powders travel on the global mar-

ket, they carry with them not only medical and pharmaceutical knowledge but also environmental regulations, chemical stan-

dards, ethical values, political agendas, and various claims of intellectual and cultural ownership. The scope of the pharma-

caceutical assemblage is therefore of medium range: while speak-

ing of separate Sowa Rigpa pharmaceutical assemblages in dif-

cent countries would miss the crucial transnational aspect of this industry, it would also go too far—at the present moment—to extend the assemblage concept to the entire traditional phar-

macutical industry worldwide, at least as long as we do not have a broader understanding of the Sowa Rigpa, TCM, or Ay-

urveda industries individually.

Given these multiple contexts, layers, and elements of the Sowa Rigpa industry, the conceptual model of the assemblage is ideally suited to gain a more comprehensive understanding of it by grasping it as a larger entity. This involves three method-

ological and analytical steps. First, given the enduring impor-
tance of the nation-state as the basic organizing unit of envi-

ronmental, public health, economic, and political governance, in-depth knowledge of Sowa Rigpa’s national contexts is an obvious and crucial prerequisite to any further work. Although by no means completed, this stage has been partially covered by most existing work on Sowa Rigpa, and it therefore requires little further explanation here. The second step is to focus re-

search on four key domains of this industry, each of which transcends the national level. These four domains are (1) the raw materials, (2) the pharmaceutical production process, (3) the traditional pharmaceutical market, and (4) the field of intellectual and cultural property rights. Finally, the data de-

rived from the first two steps need to be assembled and ana-

lyzed with the aim of generating a bigger picture of the industry as a transnational entity. In the remainder of this essay, I will briefly outline the second and third steps of this process.

Four Domains

Raw Materials

As already mentioned by Ngawang Soepa above, one impor-
tant effect of the pharmaceuticalization of traditional medi-
cines is that their ingredients (fig. 2)—mostly plants but also minerals, metals, or animal products—play an increasingly cen-

tral role in emerging pharmaceutical industries. This not only has significant implications for the Sowa Rigpa industry, which is entirely dependent on natural resources, but also transforms the medicinal plants’ value, use, meanings, and availability (cf. Hayden 2003). While some medicinal plant species are com-

mercially cultivated, many continue to be wildcrafted and cir-

culated through complex networks of trade and exchange, often involving unsustainable harvesting practices (cf. Harilal 2009). In the context of Sowa Rigpa’s industrialization and the world-

wide boom of herbal cosmetics and supplements, the avail-

ability and quality of medicinal plants thus emerges as an ex-

istent and open-ended question regarding the future of the Sowa Rigpa pharmaceutical assemblage.

With the massive upgrading of Sowa Rigpa pharmaceutical production witnessed in India, China, Mongolia, and Bhutan, the surging demand for limited natural resources is increas-

ingly becoming a matter of concern. As Dr. Tashi Y. Tashi-
gang, a Delhi-based Sowa Rigpa practitioner and producer told me in 2016, “the main problem today is the ingredients. They are becoming very expensive, or difficult to get at all. With so much demand, and the herbal industry growing at its current rate, I don’t know how Tibetan medicine will continue in the future. Also, medicines nowadays are less effective, even if
we use the same ingredients as before. It’s really a problem.” While other Tibetan pharmacists were more optimistic, all agreed that ensuring adequate raw material supplies was becoming increasingly difficult for a variety of reasons, and this has far-reaching implications for the entire industry. For example, international blacklists of endangered species and national conservation policies feed back into sourcing, trade, and identification practices, while the declining quality and increased prices of raw materials forces manufacturers to invest in modern quality control, consider substitutions or alternative formulas, and raise their medicine prices.

Given the central importance of materia medica for the commercial mass production of traditional pharmaceuticals, they are commonly problematized through the twin registers of conservation and exploitation (e.g., Pei, Huai, and Yang 2009). In this discourse, adopted by national and international policymakers concerned with biodiversity as well as traditional medicines (Bodeker et al. 1997; CBD 2009), medicinal plants emerge not only as natural resources but also as elements of cultural heritage that need to be preserved in order to be exploited and exploited in order to be preserved (Comaroff and Comaroff 2009; Hayden 2003). This idea fits seamlessly with a crucial function of any traditional medicine industry, which is to transform natural raw materials into cultural knowledge products and consequently into international commodities, thus participating in many Asian countries’ efforts to turn from suppliers of cheap labor and raw materials into exporters of knowledge products. However, neither this observation nor the larger topic of the pharmaceuticalization of herbal medicines has been taken up by the scientific and scholarly literature on medicinal plants so far,12 which mostly studies them either as material objects with particular physical properties or active ingredients; as cultural and political objects of local knowledge, practices, or identities (e.g., Aumeeruddy-Thomas and Lama 2008; Hsu and Harris 2010; Pordié 2002); or as socio-economic objects of trade and exchange networks (e.g., Olsen and Bhattarai 2005). Building on this work, it is important that we locate medicinal plants within the larger context of pharmaceuticalization and the traditional pharmaceutical industry, as a crucial domain of the Sowa Rigpa pharmaceutical assemblage.

**Pharmaceutical Production**

By definition, the Sowa Rigpa industry revolves around the mass production of pharmaceuticals (fig. 3). However, as Dr. Tsering Thakchoe pointed out above, until now, we do not have any reliable numbers by which to quantitatively gauge the Sowa Rigpa industry as a whole, let alone comprehensive qualitative information on its production methods and standards. Several heterogeneous and often antagonistic fields come together in this domain, including ancient formulas, traditional knowledge, and a vast stock of accumulated experience.

12. See Blaikie (2009), Craig (2011), Craig and Adams (2008), Hayden (2003), and Saxer (2013) for notable, if only partial, exceptions.
as well as cutting-edge technology, modern science, innovation, safety standards, and quality-control regulations like GMP. As traditional pharmaceuticals are increasingly mass produced and mass consumed, it is clear that some kind of mechanism to ensure their safety and quality is necessary (WHO 2008). Although intercultural quality standards for traditional medicines are being developed (e.g., Shankar, Unnikrishnan, and Venkatasubramaniam 2007), the quality-control regulations imposed upon Sowa Rigpa in all four countries remain characterized by a strong biomedical bias. Despite the many problems involved in this (e.g., Naraindas 2006; Pordié 2010; Waldram 2000), these global and national regulatory standards bearing on traditional medicines are also eminently productive of new socioeconomic realities, drugs, and markets. They directly link Sowa Rigpa to national and global discourses and practices regarding drug safety, efficacy, and marketability.

New Sowa Rigpa pharmaceutical units in China, India, and Mongolia are designed to comply with WHO-GMP standards, with a clear focus on internationally exporting their products and expanding their market. Together with such economic interests, the scaling up of pharmaceutical production and its increasing regulation lead to a significant increase of innovative practices (Pordié and Gaudillière 2014a). The Dharamsala Men-Tsee-Khang takes a leading role in the field here, having newly developed more than 50 over-the-counter herbal products such as teas, tonics, or massage oils since the mid-1990s. Between 2013 and 2016, the production volume and sales value of this “Sorig” product line has almost doubled, generating a disproportionate share of the Men-Tsee-Khang’s profits. Men-Tsee-Khang pharmacists also experiment with adjusting existing prescription formulas as well as developing new medications, drug forms (liquid drops, syrups, and capsules), packaging, and medicine names. In doing so, they take into account the changing price and availability of herbs, blacklists of endangered species, international market competition, legal requirements, and doctors’ feedback regarding public health, patients’ demands, or the efficacy of existing treatments.

Clearly, pharmaceutical innovation and the domain of Sowa Rigpa pharmaceutical production need to be studied as part of a larger phenomenon that goes far beyond Tibetan factory floors, encompassing raw materials, old formulas, and new claims regarding their ownership, international safety standards, conservation policies, and market dynamics.

Pharmaceutical Market

The emerging Sowa Rigpa industry cannot be understood in separation from the booming traditional pharmaceutical markets in Asia and the rest of the world, as each depends on and is shaped by the other. However, we know very little about either market or industry, because both are only just emerging, and what we do know is only partly comparable to those of other Asian medical traditions. While markets are defined by the exchange of goods and money and can be seen as value or commodity chains (e.g., Bair 2009; Gereffi, Humphrey, and Sturgeon 2005), they are equally sites for the exchange of ideas, the expression of identity, and the negotiation of power relationships. Indeed, the Sowa Rigpa pharmaceutical market has become a prime domain through which the ethics, cultural values, and political ambitions attached to “Tibetan,” “Mongolian,” or “Bhutanese” medicine are articulated, negotiated, and contested today (Kloos 2016a). Furthermore, it is through the market that Sowa Rigpa—and the multiple values, identities, and politics it embodies—become available to the world as pharmaceuticalized commodities (fig. 4). In the process, however, they are also transformed and “incorporated” into the market (Comaroff and Comaroff 2009), affecting all levels of the Sowa Rigpa industry as well as national and ethnic imaginaries.

The traditional pharmaceutical market does not follow simple microeconomic laws of supply and demand and exchange value but is also shaped by laws and regulations concerning pharmaceutical ingredients, manufacturing processes, quality control, drug safety, and intellectual property regimes as well as social, cultural, ethical, religious, and political values (Nichter 1996; Petryna and Kleinman 2006; Whyte, van der Geest, and Hardon 2002). This is very apparent in the fact that, despite the above-mentioned expansion of production capacities, the supply of Sowa Rigpa pharmaceuticals keeps lagging far behind the demand. Reasons for this include strained raw material supplies; the high level of expertise required to run a pharmacy; ethical reservations of doctors to run Sowa Rigpa—purely as a business; the fact that most Sowa Rigpa medicines are based on prescriptions but lack official drug licenses, which restricts their sale to Sowa Rigpa clinics and doctors; and the difficulties posed by official regulations.

At the same time, however, the market also influences all elements of the Sowa Rigpa pharmaceutical assemblage: as we have seen, the composition of certain drugs may be altered to gain access to the market (cf. Millard 2008), certain pharmaceuticals are mass produced while the production of others is discontinued, and new over-the-counter products are invented.
to create markets from scratch. As Sowa Rigpa stakeholders are still positioning themselves and their products within the wider sector of traditional and herbal medicines, supplements, and cosmetics, the market for Sowa Rigpa pharmaceuticals is only beginning to take shape. While some trends are already discernible, no roadmaps exist for its development, and its long-term future is not foreseeable. It therefore cannot be analyzed and explained as an accomplished fact but rather presents the opportunity to trace its formation in real time. Going beyond generating figures on profits, market values, and so on, the pharmaceutical assemblage allows us to do exactly that while locating the Sowa Rigpa market within the larger process of the pharmaceuticalization of traditional medicine.

Intellectual Property Rights

With Tibetan medicine’s industrialization and commercialization, issues of cultural ownership and intellectual property acquire increasing importance and urgency. The above-mentioned Tibetan pharmaceutical companies entering the Shanghai Stock Exchange to maximize profits for Chinese investors are only one, albeit dramatic, example (fig. 5). Whose property is Sowa Rigpa medical knowledge, and who is eligible to profit from it? As the economic, but also political and cultural, value of Sowa Rigpa becomes increasingly clear, different companies, communities, and nations have begun to voice proprietary claims as well as concerns about “protecting traditional medical knowledge” (Blaikie 2013; Kloos 2016a, 2016b; P. Wangchuk 2008). Thus, China was among the first countries to sign the 1992 United Nations Convention on Biological Diversity, which mandated the preservation of indigenous knowledge, and more recently acted as the driving force behind the WHO’s 2008 Beijing Declaration on traditional medicine (WHO 2008). China is also actively lobbying for United Nations Educational, Scientific, and Cultural Organization (UNESCO) intangible world heritage status for what it calls “China’s” Tibetan and Mongolian medicines. In India, indigenous knowledge has acquired a central place in national policies (e.g., Cullet and Raja 2004), leading to the setting up of the Traditional Knowledge Digital Library for medicinal plants and “classical formulas” (Gaudillère 2014) and even to a separate ministry for Indian medicines in 2014. In Bhutan, the National Biodiversity Centre has...
recently begun to document "Bhutanese" traditional medicinal knowledge and to draft a national access and benefit sharing policy, while Mongolia is currently compiling its own national pharmacopoeia for Mongolian medicine.

What all the different ways to protect traditional knowledge have in common is the need for translation in order to fit such knowledge into intellectual property regimes. Paradoxically, traditional knowledge has to be rendered modern to be recognized as “traditional” and protected as such: vernacular plant names need to be translated into botanical names, and pharmaceutical efficacy needs to be proven and explained by modern biomedicine. This translational work of “protecting” traditional knowledge, however, inserts the same into the capitalist market and makes it amenable to commercial exploitation. Studies have consistently shown how mechanisms ostensibly designed to protect traditional knowledge tend to result in the disenfranchisement of traditional knowledge holders, whether in China (Adams 2002b; Craig 2011), India (Banerjee 2009; Bode 2008), or elsewhere (Mgbegi 2006; Oguamanam 2006). Indeed, Sowa Rigpa producers—long accustomed to operating beneath the official radar—now find themselves increasingly exposed, often to their disadvantage, not only to the laws of the capitalist market and national and international pharmaceutical regulations and standards but also to the need to protect their knowledge and heritage as intellectual property. Even the names of prestigious institutions like the Dharamsala Men-Tsee-Khang are increasingly trademarked as brand names and fiercely protected as such. 13

Yet the transformation of traditional knowledge into a commodity need not necessarily lead to disenfranchisement and conflict; it may also be productive of new knowledge forms, ethnic identities, and economic opportunities for traditional knowledge holders and their communities (Comaroff and Comaroff 2009). Indeed, both scenarios apply to Sowa Rigpa, where the question of who “owns” its medical knowledge—and whether it is Tibetan, Indian, Chinese, Mongolian, or Bhutanese—has strong cultural, economic, and political dimensions for its stakeholders (Kloos 2016a, 2016b; Pordie 2008). As far as the transnational Sowa Rigpa industry is concerned, the issue is not how—if ever—these questions are settled but rather how their very existence impacts all levels of the Sowa Rigpa pharmaceutical assemblage.

Conclusion

What I hoped to show in this essay was that the Sowa Rigpa industry is best understood in terms of a pharmaceutical assemblage: as an emerging transnational entity greater than, and different from, simply the sum of its heterogeneous parts. With a dynamic of its own that transcends conventional social science concepts and disciplinary boundaries, it reassembles not only Sowa Rigpa as we know it but also the health-care, environmental, sociocultural, political, and economic contexts of the countries and communities in which it is rooted. To grasp and engage with this novel entity and its dynamics, I proposed a three-step approach of progressively expanding analytic scale. This approach begins with studying the Sowa Rigpa industry’s various local and national contexts, then goes beyond territorial and political limits by focusing on the industry’s four major domains, which cut across national boundaries, and ends with integrating the data thus gained within the analytic framework of the pharmaceutical assemblage. Although the first two steps do not seem to be new in themselves, in so far as they have been partially covered by earlier scholarship, we still lack even basic quantitative and qualitative insights into the Sowa Rigpa industry that would enable a comprehensive overview. Given the inevitable partiality of scholarship, the pharmaceutical assemblage thus plays a crucial role in providing the necessary framework to strategically identify specific knowledge gaps that need to be filled to gain a bigger picture. Far from being a conceptual device to be superimposed on a motley array of data at only the final stage of research, its real value and strength lies in methodologically and analytically informing multidisciplinary research from the outset. Thus, whether one studies the development of new Tibetan pharmaceuticals in India, ongoing changes of Tibetan medicine’s ownership in China, the marketing strategies behind the Bhutanese Menjong Sorig product line, or Mongolia’s postcommunist policies regulating traditional medicine, the focus is always already on whether and how these seemingly unconnected phenomena come together as parts of the same pharmaceutical assemblage.

Proceeding in this way, assembling data and partial analyses of expanding scale, a bigger picture emerges that, even if it may still have some gaps, provides a new vision and understanding of an otherwise disconnected array of information. Similar to creating a mosaic or putting together the pieces of a puzzle, the early steps of the process involve connecting individual elements into increasingly large units. Only in the last step do these units become big enough to be joined with each other to complete the picture. Once “completed”—albeit only in a provisional sense—this picture can finally be examined and analyzed as a whole. It is at this third stage that questions about the larger shape, dynamics, and consequences of the Sowa Rigpa industry can be meaningfully asked and the larger role of its various elements examined. Although, at this point, the main emphasis necessarily lies on analysis, new questions and problems may arise that require new field research. This, in turn, adds new pieces and connections to the picture, thus forming a continuously evolving feedback loop and opening new fields of inquiry. Even if the starting hypothesis proves to be wrong, and the dots do not connect into a bigger picture, this would be an interesting outcome meriting analysis in and

13. The Men-Tsee-Khang registered its name as a trademark in February 2004. In an official message to the Central Council of Tibetan Medicine in January 2015, its director, Tashi Tsering Phuri, stated: “Nowadays the number of people taking an interest in Tibetan medicine is increasing, and the number of people misusing Tibetan medicine is also increasing. [. . . ] If any individual or group is found misusing the name of Men-Tsee-Khang, we will first of all deal with the matter in a peaceful manner. If this approach fails, we will take legal action at any cost.”
of itself, without invalidating the partial insights generated thus far.

By studying, writing about, and engaging with the Sowa Rigpa pharmaceutical assemblage, we cannot help but take part in the very process that we are observing. Just as the Medicine Buddha mandala provided a coherent vision of Sowa Rigpa’s original assemblage, and in doing so marked its transition to a more stable apparatus, the scholarly project of understanding the nascent Sowa Rigpa industry as a singular transnational phenomenon doubtlessly influences and contributes to this industry’s actual formation. Sowa Rigpa producers, stakeholders, and policymakers all have a keen practical interest in gaining an overview of the industry and market that they are involved in and that they are, in many ways, creating. While they are undeniably experts in their local, institutional, or even national contexts, they often lack the time and means to gain a comprehensive yet detailed overview of the field as a whole. Without directly participating in the industry, therefore, the knowledge and insights generated by scholarly research on the Sowa Rigpa pharmaceutical assemblage may provide an important basis for making informed decisions about a sustainable future for Sowa Rigpa and its industry. This is true not only for stakeholders within the concerned societies but also for international bodies like the WHO or UNESCO, for whom the Sowa Rigpa industry barely even exists at the moment, simply for lack of accessible published data about it.

The concept of the pharmaceutical assemblage, then, not only enables us to explore new and emerging realities but also gives us the opportunity to engage with these realities in ways that are meaningful to all parties involved. As the scholarly work of research and analysis itself becomes part of the assemblage, and the assemblage doubles as both ontological entity and analytic-methodological concept, the lines between subject and object, observation and participation, and theory and practice fade. Far from compromising the quality and integrity of scholarship, this approach addresses the core concerns of both classical and cutting-edge ethnography and anthropology while opening the possibility for real interdisciplinary work within and even beyond the social sciences. In this way, we may gain a fresh perspective on the multiple confluences of science and religion, ethics and politics, or capitalism and culture that shape not only the Asian herbal pharmaceutical industry but also globally emerging forms of subjectivity, sociality, and life itself.

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Comments

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Assemblages and Amorphous Things in the Pharmacocene of Tibetan Medicine

I have long been a fan of what Stephen Kloos has been doing in the study of Tibetan medicine. The project to develop the concept and contours of a pharmaceutical assemblage, taking Tibetan medicine as the case study, is yet another important contribution. Innovation in the methodologies used to study ethnomedical things is long overdue, and indeed the pharmaceutical assemblage holds great potential. Even though this essay is devoted to work still largely waiting to be done, there is already a great deal to appreciate here.

To begin with, no longer are traditional medicines “traditional.” (They are fully modern.) No longer are they marginal to other forms of medicine or health development. (They are integrated, and sometimes in competition, with these other health care alternatives.) Traditional medicines cannot slip outside the pale of capitalism, medicalization, or nationalist political economies. (They are often conduits for precisely these larger structural forces.) In Asia as elsewhere, just how traditional medical systems are participating in the effort to produce, market, and make claims of efficacy about their medicines remains extremely interesting.

With this in mind, the notion of a pharmaceutical assemblage offers two specific advantages: (1) recognition of how pharmaceuticalization works in the space of traditional healing systems (and not just in biomedical circuits), and (2) recognition that traditional medicines are deeply embroiled in capitalist formations (in part, through this reduction to pharmaceutical forms of reason). Indeed, Tibetan medical practices are heavily committed to pharmaceuticals, and they have been for some time, but in new and different ways, in different places.
in the world, under conditions of the markets of global capitalism. 

In the spirit of collaboration, I also offer a further insight. I sense, in the mapping exercise here, a tension (or perhaps challenge) that arises from the proposition of a pharmaceutical assemblage: a manufactured desire to see the “whole picture” when, in fact, there may be no such thing. That is, the possibility of defining a global assemblage based on actual practices must, it seems, persistently refuse the desire to see connections where there may be none and, in fact, where there may be striking ruptures and incommensurables. Consider the possibility of pharmaceutical incongruities, such as different formulas for same-named therapies and different kinds of therapeutic priorities in different places. Do these disparate bits form a whole picture, or is it more helpful to let them remain disconnected in ways that are peculiar to their geographic, political, and even cultural contexts and histories, much as good ethnographies of biomedicine do? This matters not only in terms of empiricism but also in terms of conceptual methodology. One hopes that an assemblage can accommodate these divergences and ruptures in ways that question the notion of a coherent medical system, which is called forth by the very object of inquiry here: Sowa Rigpa.

Methodologically, this work thus prompts questions about just what an assemblage actually is and what it might do for us. Its philosophical intentions are to capture the messiness of structure in what are inevitably always emergent and unstable formations. Assemblages point to complex, amorphous, protean activities and arrangements; they describe those things that cannot be easily mapped or captured as if they form any sort of coherent whole picture. Of course, this is not always how the concept has been used, and some of the work on the global capitalist assemblage is a good example of this: capitalism stabilizes messiness and makes market/product/consumption practices the templates for explaining and linking differences. The risk here is that these rehearsals of what we already know (moving from Ong to Haraway, perhaps). Still, however, it begins to take shape as the ethnographic materials begin to fill in this ambitious landscape of assembled practices of Sowa! Rigpa, I am grateful to Stephan Kloos for giving us so much to think with and about.

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In his article “The Pharmaceutical Assemblage: Rethinking Sowa Rigpa and the Herbal Pharmaceutical Industry in Asia,” Stephan Kloos makes a compelling case for how and why both concepts—pharmaceuticalization and the variant meanings of “assemblage”—provide us with necessary interventions into how the Asian medicines industry might be understood. Instead of orienting this argument around either TCM or contemporary Ayurveda, Kloos focuses on Tibetan medicine, or Sowa Rigpa, the “science of healing.” This term helps to unite diverse regional traditions that are practiced from the Russian Federation and Mongolia, across the Tibetan Plateau, to the greater Himalaya and beyond. As Kloos points out, Sowa Rigpa is itself an assemblage.

The broad sweep of political geography, history, and culture encompassed by Sowa Rigpa lends credence to Kloos’ argument that we need the concept of the assemblage to understand processes of pharmaceuticalization in the ongoing transformations of “traditional” Asian medicine(s) into global commodities, symbols of national heritage, and paragons of cultural identity. Kloos’ synthetic and clear article outlines the intellectual project at the heart of a multiyear, multisited, multidisciplinary endeavor in which Kloos serves as principal investigator. Reassembling Tibetan Medicine (RATIMED) is funded by the European Research Council and represents the first major effort to capture, as Kloos puts it, “the big picture” of the Tibetan...
medicine industry—an industry at once firmly rooted in Asia and going global in its reach.

Kloos and his RATIMED colleagues are themselves an assemblage of disciplinary perspectives, fieldsites, and methodological approaches. Their work weaves together many strands of previous Tibetan medical scholarship—on small-scale producers and practitioners in places like Ladakh, Nepal, and rural Tibet (cf. Blaikie 2012; Craig 2012; Hofer 2016); on “good” manufacturing standards and drug laws in China (cf. Craig 2011; Saxe 2013); on issues of safety, efficacy, and reformulation in medicine production (cf. Blaikie 2015; Gerke 2015; Pordie and Gaudilliere 2014a; Schrempf 2015); on interactions with biomedicine, science, and public health (cf. Adams 2002a, 2002b, 2007; Adams and Li 2008; Janes 1995, 2001); and on dynamics of nationalism, intellectual property, and moral economies in relation to traditional medical knowledge (cf. Craig and Adams 2008; Kloos 2008, 2016b; Saxe 2013)—into a new analytical tapestry that demands we see pharmaceuticals themselves at the heart of these contemporary transformations. In so doing, Kloos argues, we may be able to “reframe the way we look at traditional Asian medicines” and, by extension, perhaps see this process of pharmaceuticalization in new ways. In this article, Kloos provides solid, if preliminary, evidence for this argument. He also sketches an analytical framework that, as I understand it, has been shaping RATIMED’s innovative fieldwork in India, Mongolia, China, and Bhutan.

I appreciate the structure of Kloos’ article and his emphasis on four domains of inquiry: raw materials, pharmaceutical production, the pharmaceutical market, and intellectual property. All domains are critical. However, in treating these domains equally, Kloos may be underplaying the foundational crisis of raw materials. As Kloos points out, all of the stakeholders in question identify shortages in high-quality materia medica as a fundamental limitation of industry growth. This is the crucible issue, in my opinion, as well as in those of some of Kloos’s interlocutors. Consider the words of Dr. Tashigang, one of the most influential Tibetan medical scholar-practitioners and pharmacologists in the Tibetan exile community: “With so much demand, and the herbal industry growing at its current rate, I don’t know how Tibetan medicine will continue in the future.” The importance of this statement cannot be underestimated. Without raw inputs to fuel this pharmaceutical assemblage, no industrial regulation and no amount of passion with respect to issues of national heritage, intellectual property, or cultural identity will be sufficient to keep it going. This is true for scaled-up producers; it is differentely true for cottage industry and individual practitioners who are being priced out of the market for materia medica. Here, as Kloos acknowledges, Sowa Rigpa has something to teach us that is fundamentally different from either the “epiphenomenon” of traditional pharmaceuticals in TCM (cf. Hsu 2008; Scheid 2002; Zhan 2009) or industrial Ayurveda (cf. Banerjee 2009; Bode 2008, 2015; Harilal 2009; Pordie 2015; Pordie and Hardon 2015). The source-force is distinct. When coupled with the fact that Tibetan formulas often travel not through global trade agreements but in suitcases, when medicines are recast as dietary supplements or herbal teas, the nature of both the concept of “pharmaceutical” and the boundaries of this assemblage shift shape.

I feel a productive, if disturbing, tension in the ethnographic evidence Kloos presents in this piece. It is a tension between the artisanal and the industrial, between the value of export markets and the value of small-scale production. No matter how much those at the vanguard of this “growth industry,” such as Dr. Boldsaikhan in Mongolia, might idealize cottage industry, this approach may be in fundamental conflict with those selfsame small-scale producers he admires in India and beyond—people whose diversified knowledge as well as the materia medica on which they depend can be considered “critically endangered” (Blaikie 2009; Blaikie et al. 2015). This is not the global pharmaceutical assemblage. It is its shadow. In this and other ways, then, I agree with Kloos that there are “existential and open-ended question[s] regarding the future of the Sowa Rigpa pharmaceutical assemblage.”

I also note that Nepal is conspicuously absent in Kloos’s description of the pharmaceutical assemblage. Although this Himalayan nation-state may not be central to the RATIMED research agenda, it still seems important to mention, in part because it is another site of cottage industry production and—perhaps most importantly—a region from which many raw materials are sourced, either legally or extralegally. I would argue that, although Nepal is not a dominant space of production in this new pharmaceutical assemblage, the country remains a significant component of it, particularly when it comes to the “durability” of this burgeoning industry.

As Kloos notes, the first medical thangka depicts Tanadug, this “City of Medicine” at the heart of Sowa Rigpa mythohistory. The thangka itself is a narrative of coherence, incorporation, and belonging. Unlike some understandings of assemblage (Ong and Collier’s articulation of the term, for example), for many Sowa Rigpa practitioners, seeing this knowledge system as an assemblage is complicated by the fact that it is so often discussed as a perfect, complete, and dynamic whole—an antissemblage, if you will. In addition, Tanadug is a realm defined by materia medica: raw materials are its border, its boundary, the thing that gives shape and physical possibility to this realm of healing. Even so, Tibetan formulas are themselves assemblages: of textual and embodied knowledge, of high mountain plants and subtropical roots, of religious and scientific ways of knowing.

I see deep contingency within this version of the Asian pharmaceutical assemblage. Not only at the level of formulas but also at the level of cultural knowledge, Tibetan medicine is in the midst of de- and reterritorialization, be this about territories of plant species and their endangerment, the temporality of harvest and raw-material processing, or the creation of Sowa Rigpa as a global brand (Craig and Gerke 2016). All of these issues course like currents beneath nationality, even as they are imbedded in national and cultural claims to identity and ownership, as Kloos points out. As much as pharmaceut-
Pharmaceuticalization is deeply important, it can run the risk of minimizing the materiality of plants themselves and the (social) ecologies from which they come, adopting instead a focus on drugs and their delivery into bodies. This is one way of thinking about standardization and pharmaceutical governance. Kloos is right that we need to focus on pharmaceuticalization, but we should not lose sight of what underpins pharma production. I am grateful for Kloos’s overarching approach. The links to modernization, globalization, global health, and capitalism to which Kloos points are all real, and we definitely need the “big picture.” However, the veracity of this aerial view rests with ground truth: local and regional articulations of the challenges and opportunities posed by the creation of this industry. And the jury is still out on who decides what a “sustainable” future looks like.

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The “pharmaceutical assemblage” of the Asian pharmaceutical industry, as outlined by Stephan Kloos, is indeed a process worth further study on the global health market. After conducting ethnographic fieldwork between 2001 and 2008 in East Africa on this phenomenon for about 1 month each year, attempts such as this one, that aim to provide a theoretical framework for making sense of disparate field observations, are always very welcome. I saw in this “biotechnological nexus” an “alternative modernity” (Hsu 2009), and Pordié and Gaudillière spoke of “The Reformulation Regime in Drug Discovery” (2014a). Kloos now refers to Deleuze and Guattari’s (1980) “assemblage” for capturing the fluidity of the phenomenon.

Sometimes, anthropologists may decide to put the viewpoint of their interlocutors center stage without themselves subscribing to it. For the TCM practitioners that I worked with in Tanzania, Kenya, and Uganda, such a core theme was the cleavage between “traditional” and “modern” medicine. They had the permission from the country’s Ministry of Health to sell and administer traditional herbal, animal, and mineral medications but not modern drugs consisting of purified chemical substances. At the time, the most frequently sold over-the-counter medicine was artemisinin, a purified chemical substance, extracted and purified from a traditionally known Chinese medical herb called qinghao. It was a much-sought antimalarial that, as health authorities claimed, was in fact a biomedical drug.

However, some few TCM practitioners claimed artemisinin belonged among the traditional Chinese herbal formula medicines. From a historical point of view, they clearly were mistaken. The chemical molecule artemisinin was extracted, purified, and identified thanks to a Communist Chinese military special task force in the context of the Vietnam war (during which more soldiers succumbed to malaria than died in combat). My TCM interlocutors evidently argued in defense of their business. However, although their argumentation was skewed, I found it ingenious. They claimed artemisinin was just another of the “ethno-chemical” hybrids of the Chinese medical pharmaceutical industry, or what Kloos proposes to call a “pharmaceutical assemblage.” I recorded in detail the playful recombination of ingredients of Chinese medical formula medicines in East Africa and argued that it was indicative of an “alternative modernity.”

Pordié and Gaudillière (2014a) have a technical term for this “playful recombination of ingredients.” They mention a term their interlocutors use, “retrograde engineering,” and emphasize that the Ayurvedic industry only makes use of natural herbal, animal, and mineral ingredients. Accordingly, the Ayurvedic pharmaceutical industry produces “natural products”—that is, pharmaceuticals that they see as posing a “critical alterity” to modern biomedicine. These pharmaceuticals also pose a critical alterity to an assumed modern-traditional cleavage, much like the “alternatively modern” Chinese medical formula medicines, which might include vitamins, steroids, specific purified chemical substances (e.g., against hypertension), alongside the traditionally given “natural ingredients.” As the authors underline, the “reformulation regime” posed unprecedented challenges due to a “complex interface between regulation systems, innovation processes, and the market” (Pordié and Gaudillière 2014a:57). Their article is written from a bird’s-eye viewpoint; it departs from Foucauldian notions of governmental and, due to the phenomenon studied, takes that theoretical framework a step further into a rich and convincing analysis of “looping” effects.

The term “reformulation” is used to highlight the tensions between contemporary manufacturing practices that often are export-oriented and Ayurvedic scholarly text-based knowledge and practice. “Innovation through reformulation” is neither a matter of integrating plant materials into biomedicine nor of adapting traditional procedures to industrial production. Rather, it redefines knowledge and production practices and gives rise to an autonomous “pharmacy,” decoupled from the physician’s clinical practice. Mass production of these reformulated drug preparations makes it impossible, on an epistemic level, to attend to personal life histories, as physicians did previously, and to provide a personalized treatment. Reformulation, we are told, “involves multiple translations in order to create new, ideally global, ayurvedic medicines for biomedically defined ailments” (Pordié and Gaudillière 2014a:64). The procedures, however diverse, create new social groups and globalized networks and have been recorded, in places, to impact and shape biomedical routines as well.

Kloos now uses Deleuzian musings on the “assemblage” to speak of similar processes of pharmaceuticalization in an emergent transnational Sowa Rigpa industry. He too observes that changes in manufacturing practices go hand-in-hand with changes in legislative regulation, such as the implementation of GMP standards, the 2001 Tibetan Drug Administration law, or the WHO’s Beijing Declaration (WHO 2008). He aligns himself in his understanding of the assemblage with Paul Ra-
binow, Anna Tsing, Stephen Collier, and Aihwa Ong, and for him, its value lies primarily in it being an “ideal conceptual tool to generate a bigger picture.” “Going beyond simple description,” he says, “the concept of the pharmaceutical assemblage enables the investigation of new phenomena that arise as a consequence of the globally occurring pharmaceuticalization of health care and life itself and which cut across—escape, even—conventional analytic frameworks such as culture, society, politics, the market, or nation-states.” Does Kloos mean to say that the Deleuzian discussions allow one to transgress structural and functional frames of reference? He then goes on to outline a grid of future research, in a somewhat linear fashion, moving through four domains: the raw materials, pharmaceutical production, the pharmaceutical market, and intellectual property rights. This is reminiscent of the social lives of medicine approach that is also foundational to his current European Research Council project, Reassembling Tibetan Medicine (RATIMED); it gives the notion of assemblage an additional biographical aspect.

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This essay is a welcome and sincere piece written by Stephan Kloos—an anthropologist who devotes his academic career to studying Sowa Rigpa and its transformations in the contemporary world. Compared with Marta Hanson’s commentary (2015) on the future of TCM, which was written shortly after the Nobel Prize in Medicine for 2015 was awarded to Youyou Tu for the discovery of the isolated active ingredient of artesimin in Artemisia annua that treats malarial symptoms, Kloos’ essay is a position paper or an assessment that aims to call more attention to this Asian therapeutic tradition as it spreads beyond national boundaries.

While both notice the increasing use of medicinal herbs in Asia accompanying some forms of mass production that can facilitate an industry in biomedical terms, the pleas for Sowa Rigpa and for TCM differ. Unlike Hanson’s proposal, which encourages “medical bilingualism” to cross the conceptual boundary between TCM and biomedicine, the proposal for Sowa Rigpa is a modest one, intended to win more recognition by medical anthropologists and those who seek the betterment of health care from a non-Western source. By introducing the concept of pharmaceutical assemblage, Kloos suggests a comprehensive frame by which people can locate what has been achieved in understanding Sowa Rigpa and follow what it has been evolving into on a transnational scale.

Kloos has strategic reasons for this approach. According to the classification of complementary and alternative medicines provided by the National Center for Complementary and Alternative Medicine (later reorganized as the National Center for Complementary and Integrative Health), Sowa Rigpa, as an Asian medical tradition, does not enjoy recognition as a complete therapeutic system, such as Ayurvedic medicine or TCM. Therefore, instead of claiming Sowa Rigpa is a well-established medicine that seeks to be established as such, or depicting it as a series of discrete healing practices attached to Tibetan communities around the world, Kloos argues from a flexible standpoint that summarizes the attempts to institutionalize Sowa Rigpa in the past three decades, trying to provide a theoretical foundation on which national variations of this tradition (as seen in Bhutan, China, India, and Mongolia) can be dissolved into concerns regarding making Sowa Rigpa a transnational herbal industry.

For this, Kloos proposes the idea of pharmaceutical assemblage, which is an interesting conceptualization to start with. Yet, without concrete cases, it is difficult to assess its interpretive validity. By looking at a TCM product that seeks the approval of the US Food and Drug Administration to be sold as drugs, my ethnography (Kuo 2016) traces the ways to generate acceptable clinical data for review as well as the social dynamics among practitioners, researchers, and industry experts who are expecting this drug to act as an example of the globalization of TCM. Compared with my study, this essay’s main contribution is a call for transnational ethnographies and an outline of four domains—raw materials, production, market, and intellectual property issues—that require academic scrutiny.

According to the author, the domains serve as conceptual means by which a comprehensive understanding of the herbal industry based on Sowa Rigpa can be achieved. Aside from the fact that they can accommodate assemblages involving “the particular yet global dynamic of pharmaceuticalization,” these domains seem to be independent. These domains are important issues for the pharmaceutical industry to consider; however, it is equally crucial to ask whether the four domains alone justify an industry that is in the making. Let me discuss the example of the domain’s impact on raw material; this section covers issues from the cost and effectiveness of drugs, to the conservation of medicinal sources, to the transformation of herbs into knowledge products. These issues are certainly important, but they can be important in other domains. While appreciating the identification of these domains, I would expect more studies that elaborate on their relationships.

Another consideration that a transnational industry based on Sowa Rigpa might face is global standards and regulations. Kloos has pointed out some policies of this dimension, such as WHO-GMP standards, but in terms of the regulatory machin-
eries that shape the growth of global pharmaceuticals, there are issues that deserve equal attention. The author has noted the notion of reformulation regime (Pordié and Gaudillière 2014a) and that of hybrid assemblage (Rose 2007). In this case, the author may want to consider Peter Keating and Alberto Cambrosio’s perception of modern biomedicine as a nexus of platforms that consist of knowledge, practice, and institutions (2003). It will be interesting to see whether Sowa Rigpa has facilitated the formation of platforms where an industry based on herbal drugs, comparable to that based on biomedical ones, can be established.

Finally, there is the tension between pharmaceuticalization and medicalization. In a therapeutic ecology in which drugs mediate practitioners and their patients via prescriptions, the tendency to consume more drugs can be a threat to this ecology, since drugs are more accessible than the practitioners who prescribe them. My study (Kuo 2016) has indicated that, in China, where TCM has been used for thousands of years, a dilemma emerged when the government considered improving the quality of TCM drugs, which might sacrifice accessibility to users. In the same light, I would like to see whether this consideration can also apply to Sowa Rigpa, which, as Kloos rightly points out, has become an international commodity. Perhaps this is why the title of pharmaceutical assemblage is both welcome and confusing.

Sowa Rigpa may be considered a constructed tradition; it takes different forms of institutionalization based upon the national contexts where it is located. Even so, becoming a transnational industry is not necessarily a natural step for Sowa Rigpa to take. Like TCM, the Sowa Rigpa industry requires actors, such as scientists, companies, regulators, distributors, practitioners, and consumers. For them, pharmaceutical assemblage is a useful concept, but we should not stop there. We may group these actors in terms of assemblages, but making sense of them by identifying their roles and interactions would be the next challenge. In addition, as the author would agree, capturing the “bigger picture” of Sowa Rigpa, or those of other Asian medical traditions, is an intellectual effort that keeps evolving. Shared with this enthusiasm, we look forward to more conversations on the flow and circulation of these traditions as they encounter, interact, and are entangled with each other within Asia and abroad.

Making. To study these emergent industries in India, China, Bhutan, and Mongolia, Kloos proposes the term “pharmaceutical assemblage.”

The term “assemblage” lends itself well to capture the breadth of actors, regulations, techniques, and materials involved. It provides a bracket around these heterogenous elements and allows us to think them together. In fact, the notion of assemblage has been very useful in my own work on the creation of a Tibetan medicine industry in the People’s Republic of China (Saxer 2013). The notion of assemblage, as Kloos argues with Rabinow (2003), is particularly helpful when it comes to understanding emergent figurations that will either disappear or transform into more stable apparatuses—as has been the case in other Asian medicinal systems, including Ayurveda and TCM.

The rise of industrial production is undoubtedly an important turning point for Sowa Rigpa, the Tibetan medical system. With industrial production, questions of consumer safety, intellectual property rights, and (potentially) export inevitably come to the forefront and call for tighter integration into national systems of drug registration and quality control. Drug-testing requirements or compulsory GMPs may follow globally accepted approaches; the power to decree, enforce, and control, however, remains the domain of national authorities. Thus, one could argue that the Sowa Rigpa industries that developed over the past two decades are increasingly becoming part of relatively stable national apparatuses. In this sense, one could argue that the notion of assemblage may be less pertinent now than it was a decade ago.

Stephan Kloos’ proposal, however, goes beyond simply applying a well-rehearsed sociotechnical systems idea to his field of study. Rather than simply “assemblage,” Kloos suggests “pharmaceutical assemblage” as guiding notion. This approach is both more focused and larger in scope: it is more focused because it puts pharmaceuticals squarely at the core of the assemblage at hand, and it is larger in scope because it looks at the emerging industries of Tibetan medicine in India, Bhutan, China, and Mongolia as one pharmaceutical assemblage.

“Pharmaceutical assemblage” is a promising starting point, and as Stephan Kloos’ proposal is linked to a 5-year research project funded by the European Research Council, we will see the fruits of this approach in the years to come.

Putting pharmaceuticals squarely at the center takes into account the ongoing pharmaceuticalization of medical practice around the world. This marriage of the concepts of pharmaceuticalization and assemblage seems convincing and logical—I am tempted to call the result a “pharmaassemblage.” However, marrying pharmaceuticalization and assemblage also carries the risk of loosing sight of other aspects of equal importance. The industries at hand are clearly also part of configurations that are not “pharmaceutical.” For instance, as we know from the histories of TCM or Ayurveda in India, processes of standardization and institutionalization were closely tied to their potential in the context of nation building: traditional medicine as national knowledge and heritage. For the very same reason, Tibetan medicine was excluded from nation-building projects in India and China. The ethics and politics surround-
ing the “Tibet question” made this impossible but nevertheless played a crucial role in the rise of industrial production in Tibet and in exile. The politics of cultural identity are clearly part of the industrial assemblage; however, they reach far beyond questions of pharmaceuticalization or the pharmaceutical nexus.

For Kloos, the pharmaceutical assemblage is more than just a conceptual tool; it also doubles as an ontological entity. This resonates very much with my own experiences visiting production facilities in Tibet, India, and Bhutan. The factories, with their clean-room aesthetics, industrial soundscape, Buddhist paraphernalia, and omnipresent smell of medicinal herbs are tangible and obvious assemblages in which radically different worlds come together in a very distinct way. An anthropologist studying such an assemblage and providing potential links to academic institutions abroad quickly becomes part of it, thereby “breaking the conceptual and temporal barrier between observer and observed,” as Kloos notes with Fabian (1983) and Chakrabarty (2000).

The factories, however, are only one of the four domains that Kloos suggests make up the pharmaceutical assemblage of Sowa Rigpa, the others being the raw materials, the market, and intellectual and cultural property rights. In these domains, the pharmaceutical assemblage is probably less suited to double as ontological entity. The collectors and traders of medicinal plants that I met in the Himalayas over the past 6 years, for example, have little knowledge about—or interest in—the industries that their herbs are sold to. While the plants they collect can certainly be located within the larger context of the pharmaceutical assemblage, the ways in which their lives and dreams are tied into the industries they supply remain abstract. Having observed waves of demand for particular herbs rippling through the Himalayas and triggering cycles of boom and bust that are characteristic for such frontier economies, disjuncture comes to mind rather than assemblage. While analytically the notion of assemblage allows us to bring things together, there is no denying that the industrialization of Tibetan medicine has also been a strong disassembling force, separating the domains of raw materials, pharmaceutical production, and medical practice.

The “pharmaceutical assemblage” is thus, first and foremost, a conceptual lens, a way of seeing things—and a good one at that. It provides focus and scope to study a transnational phenomenon that would otherwise remain out of sight. Inherently, by doing so, it also blurs aspects of the story that are not pharmaceutical. With this in mind, it is an excellent tool to break new ground.

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In his programmatic volume Science in Action (1987), Bruno Latour laid out seven rules of method and six principles for opening up the black box of science as a field of critical and empirical social studies. Although his primary focus was on modernist science, the “savages” also figured prominently in the production of the global scientific enterprise by serving, first, as examples of irrationality and, second, as the local in the production of universal science. This line of inquiry was to mature into actor-network theory—or simply ANT—one of the most important tools for studying the construction of scientific knowledges and practices.

Over the past few decades, ANT has been enlisted by anthropologists to study science and technology, health and medicine, finance, and capitalism as projects and processes in action—that is, projects and processes that exceed taken-for-granted social domains and entities and are situated, protean, and immanently constitutive. In due course, ANT has also generated various critiques, rethinking, and reinvention. In his programmatic essay, Stephan Kloos argues that ANT describes emergent worlds as singularities. The question, then, is how to produce a “bigger picture” or “big picture” of science, medicine, and capitalism.

To address this concern, Kloos presents his vision of the “pharmaceutical assemblage” as a model for constructing the big picture of the pharmaceuticalization of traditional Asian medicines. Using the multinational industry of Sowa Rigpa—the “science of healing” commonly referred to as traditional Tibetan medicine—as an example, he vividly captures an emerging transnational pharmaceutical industry of traditional medicine consisting of multiple materials, contexts, and institutions that make it more than the sum of its heterogeneous parts. I find this article thought provoking in a number of ways. To begin, Kloos’ work builds on and enriches literatures in medical anthropology and sociotechnical systems theory that put the pharmaceuticalization of traditional medicines in conversation with discussions of the nation-state and transnational capitalism. Specifically, Kloos lays out a three-step procedure for mapping the pharmaceutical assemblage: studying the nation-state as the organizing unit for governance, then researching the four key domains of the industry that transcend the nation-states (raw material, production, market, and property rights), and finally reaching a bigger picture of the industry as a transnational entity.

This procedure has several important implications. First, how might our understanding of transnational pharmaceutical industries change if we shift our attention and focus to the roles of institutions and policies? Kloos’ proposal orients us toward the critical roles of institutional interplay across various locations, scales, and contexts—from state bureaucracy to international regulatory law, from sites of production to sites of consumption. This reorientation is both ambitious and necessary, as it is aimed at creating a transnational map of institutions as interactive networks rather than a collection of static entities. Second, at the center of the pharmaceutical assemblage is Kloos’ emphasis on generating a “big picture” that implies conceptual (and empirical) works aimed at transforming particular parts and aspects of a phenomenon into understandings of a whole. Kloos specifies what he means by the big picture, as
I discuss above, through contrasts with concepts such as ANT and “worlding,” Just as important and illuminating, he places his own definition alongside the words of Dr. Tsering Thakchoe, former chairman of the Dharamsala-based Central Council for Tibetan Medicine: “It is important to know about Tibetan medicine’s situation in other Asian countries and the West. We need data on its practice and development in all those places in order to make our own policy. We need an understanding of the big picture.” In other words, Kloos’s big picture is as big as it is comparative and specific. It parallels that of his interlocutors rather than imposing another level of analysis and, in doing so, opens up the possibilities for multidisciplinary and multisited collaborations that would lead us into relatively uncharted and potentially productive territories. If we follow Kloos’s program, the result could be a cluster of empirical studies that become part of its own map by assembling multiple concerns and addressing a diverse set of audiences and collaborators, including anthropologists and policy makers. Anthropology will speak to public policy, and discussions of traditional medicine, global pharmaceutical industry, market capitalism, and global health will be invigorated through expansive and innovative maps and mappings.

Kloos’s own analysis thus implies that all maps and mappings are situated and fluid (see Delaney 2004), which brings me back to Science in Action. Mapping is also important in Latour’s account of how certain knowledges become local and others become universal. The last chapter of the book begins with the story of the encounter between the French cartographer Comte de Lapérouse and a group of Chinese fishermen on what is now “known” as Sakhalin Island—an encounter where the implicit and situated knowledge of the fishermen was transformed into the “precise, certain, and justified” knowledge of science in the form of a map of the Northeast Asian seas (Latour 1987:215–219). Incidentally, Lapérouse himself ended up in the bellies of the South Pacific cannibals and became part of their map (Latour 1987). Whether oriented toward “singularity” or “big picture,” then, maps themselves are the practice and product of provisional alliances and continuous struggles and, as such, are always generative and generated. As Kloos powerfully reminds us, the assemblage of Sowa Rigpa is emergent and not (yet) a stable entity, and it is into this set of actions that anthropologists must insert ourselves.

Reply

What is a pharmaceutical assemblage, and what can it do for us? Vincanne Adams’s basic question provides an opportunity to revisit my essay some 2 years after I wrote its first draft and elaborate—with the benefit of distance—some of its key points in reply to the above comments. One of these points concerns the very nature of the essay itself: reminiscent of Eduardo Viveiros de Castro’s (2014) antinarcissistic shift of perspective regarding anthropological analysis, the ontological qualities of the pharmaceutical assemblage as an ethnographic subject are mirrored by the epistemological qualities of the pharmaceutical assemblage as a concept. Simply put, this means that the attempt to methodologically access and conceptually grasp an emerging transnational phenomenon (like the Sowa Rigpa industry) itself appears provisional and open ended. As Wen-Hua Kuo aptly points out, the intellectual effort required to engage and map entities that are made up of different and not always commensurable elements is constantly evolving and is therefore as much a work in progress as the Sowa Rigpa industry itself.

The scope of this programmatic essay, then, is much larger than the research project that it comes out of or the Sowa Rigpa industry that it focuses on. What it proposes is a new mode of mapping and understanding contemporary figurations of Asian and other medicines within a capitalist framework of pharmaceuticalization, commercialization, and globalization: not as “medical systems” but as transnational industries, not as “ethnomedicines” but as pharmaceutical assemblages. At stake here is not simply terminology but the capacity to bring—and think—together not only the heterogeneous elements of the assemblage under scrutiny but also different kinds of data and insights from a whole range of disciplines and perspectives. This is not motivated by an applied strategic or political desire to gain recognition for Sowa Rigpa by other medical anthropologists or national agencies, as Kuo reads my essay. Rather, the pharmaceutical assemblage is an open invitation to scholars, stakeholders, and practitioners to debate the concept and contribute to an ethnographically situated yet broad understanding of contemporary pharmaceutical realities in Asia and elsewhere.

One inspiration for this essay was to conceptualize, think through, and further develop an already ongoing shift in focus and approach that distinguishes some of the best recent work on Asian medicines, including Elisabeth Hsu’s (2009) work on “alternative modernities” in TCM in East Africa, Laurent Porfidje and Jean-Paul Gaudillière’s (2014a) notion of Ayurvedic “reformulation regimes” in India, or Wen-Hua Kuo’s (2016) ethnography of a TCM product at the US Food and Drug Administration. While it remains to be seen whether the pharmaceutical assemblage will establish itself more durably as a conceptual term, it thus rests on solid foundations. Among them, the collaborative approach laid out by my colleagues Calum Blaikie, Sienna Craig, Barbara Gerke, and Resi Hofer in their Current Anthropology article “Coproducing Efficacious Medicines: Collaborative Ethnography with Tibetan Medicine Practitioners in Kathmandu” (Blaikie et al. 2015) is particularly noteworthy. Indeed, the pharmaceutical assemblage (whether as an ethnographic subject qua Sowa Rigpa industry or as an analytic concept) fundamentally relies on the collaboration (formal or not) between its participants and stakeholders in the field, anthropologists, and other researchers. I am thus grateful to the commentators for their collaboration in thinking through and critically questioning the approach and ideas presented in my article.
Perhaps the most fundamental concern is voiced by Vincent Canne Adams, who worries that this analytic approach may, in fact, be little more than a “manufactured desire” to see connections and a bigger picture “where there may be none.” Of course, Adams does not deny the existence of a Sowa Rigpa industry in Asia per se and is well aware of the numerous interconnections between its different parts, across several nations. As I understand it, her main point concerns the tension between ethnographic specificity and an analytic focus on the big picture. Do the ruptures, incongruities, and incommensurables that mark the field of Sowa Rigpa (as much as any other Asian medicine) preclude the possibility of a meaningful bigger picture altogether? Stated in a different way: is the pharmaceutical assemblage compatible with good ethnography?

In many ways, this question cuts to our discipline’s core identity as a champion of cultural difference and local particularity that is also committed to contextualizing this difference in the contemporary world to be able to productively engage with it. I do not see any conflict or tension here. To adapt the old metaphor of the forest and the trees, this is not a choice between focusing on either individual trees or the whole forest, each at the expense of the other. Just as we cannot engage the forest without looking at its individual trees, our understanding of a particular tree would be incomplete without the concept of the forest as a whole. A lone tree in the desert has qualities that are very different from those of a tree that is part of a forest, just as a biodiverse rainforest has little in common with an oil palm plantation. The example of the forest, as an entity with its own dynamics that is not reducible to the sum of the trees, stands for the pharmaceutical assemblage (of which there can be many kinds), and the trees stand for the ethnographic particularities. My point is that the larger whole has a bearing on its individual parts and thus needs to be considered even by those who are only interested in the latter.

Applying this to the Sowa Rigpa industry, the pharmaceutical assemblage allows us to perceive different, seemingly incommensurable elements (different formulas, therapeutic priorities, institutions, and national policies) as parts of a larger entity. This entity, as Mei Zhan importantly points out, is not something imposed or imagined but reflects the concerns of our interlocutors and is therefore part of ethnographic reality—as most conversations with Sowa Rigpa practitioners today illustrate. The transnational Sowa Rigpa industry directly affects Sowa Rigpa clinical and pharmaceutical practices locally, whether in Mongolia, Tibet, Bhutan, or India: a physician’s decision to use one prescription rather than another is as much influenced by the availability of raw materials, perceptions of different producers’ quality, market considerations, or national regulatory regimes as it is by his or her lineage, training, and the diagnosis of the individual patient. I therefore agree with Zhan and Craig that the bigger picture of the pharmaceutical assemblage is situated and fluid, comparative and specific, deeply contingent, and eminently ethnographic.

If incommensurables and disconnections do not preclude a bigger picture but may in fact be part of it, they also constitute the other side of the coin of pharmaceutical assemblages—perhaps more than I acknowledge in the essay. I thus appreciate Martin Saxer’s observation that, while the Sowa Rigpa industry brings together things in new ways, it is at the same time also a disassembling force, separating other things that used to form an entity before. There exists a growing division of labor and knowledge as a consequence of Sowa Rigpa’s industrialization, where the amchi no longer produce their own medicines, administrate their own clinical practice, or train their own successors. Even while the Sowa Rigpa industry is emerging as a new phenomenon, we can witness the beginnings of alienation, well known in other contexts of capitalism: the alienation of producers from their ingredients, of physicians from their patients and medicines, and ultimately of Sowa Rigpa itself from its communities and local ecologies. Every assemblage takes its elements from other, previous assemblages or apparatuses: Picasso had to disassemble (one could also say destroy) a bicycle to construct his famous Bull’s Head. This is Deleuze and Guattari’s principle of deterritorialization and reterritorialization.

Saxer is also right in pointing out that the pharmaceutical assemblage is a more focused and specific concept than that of the (global) assemblage, and it therefore cannot account for everything. There is no doubt that certain nonpharmaceutical domains of the general field of Sowa Rigpa fall outside of its analytic scope. As far as the Sowa Rigpa industry is concerned, however, I stick to my argument that its central turning point is pharmaceuticals, which provide a crucial—albeit certainly not exclusive—analytic perspective able to hold all other elements together. If one simply wanted to study Tibetan medicine’s politics of cultural identity and nationalism, as I have done for years (Kloos 2008, 2011, 2012, 2013), such a perspective would doubtlessly be too limited. To engage with an emerging transnational industry based on the pharmaceuticalization of traditional knowledge that transgresses, as Elisabeth Hsu mentions, the totalizing claims of our usual frames of reference (e.g., capitalism, culture, medicine, politics, or science), however, the pharmaceutical assemblage serves as a powerful and pragmatic tool. While the specificity of the pharmaceutical thus delimits the scope and range of this perspective, it simultaneously adds analytic grip to the otherwise rather general notion of the assemblage.

Let me turn to less theoretical and methodological but equally important comments. Saxer cautions that Sowa Rigpa industries “are increasingly becoming part of relatively stable national apparatuses,” making the notion of the assemblage less pertinent than it was a decade ago. On a national level, this is indeed a trend that can be observed, albeit one that is—with the possible exception of China—far from complete. The Sowa Rigpa industry remains, on both the national and especially the transnational levels, very much a work in progress with an uncertain future. Sienna Craig underscores this well by commenting on the “foundational crisis of raw materials,” referring to increasing shortages of ingredients that seriously limit or even existentially threaten (the growth of) the industry. To
Craig, the unsolved problem of raw materials is so central to the entire three domains of the pharmaceutical assemblage (pharmaceutical production, the market, and intellectual property rights).

I sympathize with Craig’s argument. There is no doubt that the Sowa Rigpa industry, in its current form, existentially depends on its raw materials, some of which are increasingly exploited, endangered, protected, and expensive. Yet there is substantial ethnographic and comparative evidence to suggest that, as an industry, Sowa Rigpa is flexible enough to continue to grow without many of the more problematic ingredients. While some physicians, such as Dr. Tashigang, take a pessimistic view, others point to the virtually untapped wealth of hundreds of classical but so far unused Sowa Rigpa formulas, many of which do not require any high-altitude herbs. Still others see the future of Sowa Rigpa’s growth in branded herbal products (such as incense or herbal teas) or newly formulated over-the-counter drugs with few ingredients, rather than the complex medicinal compounds currently in use. There are several directions in which the Sowa Rigpa industry could develop, depending on a number of factors, among which raw materials is but one.

Craig also notes the absence of Nepal in my analysis: this is indeed an omission that I am grateful she corrects. The initial reason for not including Nepal (or Buryatia and Tuva, for that matter) was the relative insignificance of the Sowa Rigpa industry there, particularly given the absence of official state recognition. However, since the time of writing the essay, the situation has changed, especially in Nepal, where commercial producers have upscaled their operations in collaboration with Tibetan pharmaceutical companies across the border. Suffice it to say that Nepal does constitute an important site in the bigger picture of the transnational Sowa Rigpa industry, a fact that the RATIMED project has also since taken into account. A point raised by Craig is the classical view—held also by most contemporary amchis—of Sowa Rigpa as the perfect, complete, and systematic teaching of the Medicine Buddha: Sowa Rigpa as an “anti-assemblage,” if you will. Yet as far as the Sowa Rigpa industry is concerned, all interlocutors are acutely aware of its emerging, unstable, open-ended, and imperfect nature—and its disruptive potential—as a pharmaceutical assemblage.

Elisabeth Hsu finds remnants of a biographical “social lives of medicines” approach in the identification of four domains of the Sowa Rigpa industry. Indeed, it is possible and even tempting to read them in a linear fashion, beginning with the raw materials, moving through the production phase to the market, and finally to the domain of intellectual property rights. Yet this is not the point of the pharmaceutical assemblage at all, which resists assumptions of singular trajectories or linear flows. Its purpose is not to follow a particular ingredient or medicine through its “life” but to generate a larger map of the terrain created by ingredients, medicines, knowledge, people, the market, culture, politics, science, or intellectual property rights together. The identification of four domains is simply a heuristic analytic move that is intended to highlight, first of all, the transnational nature of the Sowa Rigpa industry, and second, the fact that each of these domains is contingent upon the others as well as the whole. Each of them constitutes a valid analytic starting point: instead of beginning with the raw materials, one might equally well ask how the market affects the use of raw materials or how intellectual property rights influence pharmaceutical production and innovation.

The commentators are right to point out that the pharmaceutical assemblage remains a notion still in need of ethnographic substance. As mentioned, my essay is a programmatic one, and I hope that this will be seen as an opportunity rather than a shortcoming. Yet it is worth mentioning that, since the time of its writing, rich empirical work that substantiates the notion has been published by both the RATIMED team (Blakie 2016; Harilal, forthcoming; Kloos 2015, 2016b, 2017) and others (Craig and Gerke 2016; Gerke, forthcoming; Pordié 2016; Pordié and Gaudilliére 2014b; Schrepf 2015). Much of this work may not refer to the term itself or even focus directly on any bigger picture (yet), but it is noticeably driven by an awareness of a larger whole and by a collaborative desire to map its as-yet-unknown contours. As Asian medical industries can no longer be adequately understood in terms of “medical systems” or “ethnomedicines,” the pharmaceutical assemblage offers new ways of exploring the connections and contradictions of contemporary Sowa Rigpa, Ayurveda, Unani, Kampo, or TCM. The collective process of mapping the Asian herbal pharmaceutical sector from a new perspective is already underway, and I look forward to seeing a bigger picture emerge.

—Stephan Kloos

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