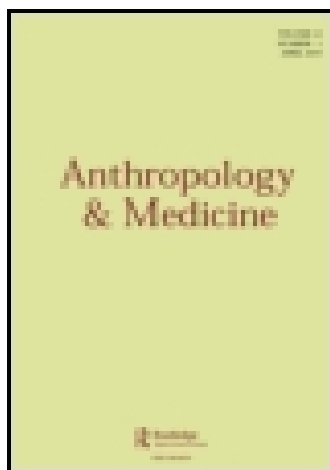


This article was downloaded by: [193.171.198.3]

On: 05 February 2015, At: 00:57

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Anthropology & Medicine

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/canm20>

Wish-fulfilling jewel pills: Tibetan medicines from exclusivity to ubiquity

Calum Blaikie^a

^a Institute for Social Anthropology, Apostelgasse 23, Wien, 1030 Austria

Published online: 30 Jan 2015.



CrossMark

[Click for updates](#)

To cite this article: Calum Blaikie (2015): Wish-fulfilling jewel pills: Tibetan medicines from exclusivity to ubiquity, *Anthropology & Medicine*, DOI: [10.1080/13648470.2015.1004504](https://doi.org/10.1080/13648470.2015.1004504)

To link to this article: <http://dx.doi.org/10.1080/13648470.2015.1004504>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms &

Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

Wish-fulfilling jewel pills: Tibetan medicines from exclusivity to ubiquity

Calum Blaikie*

Institute for Social Anthropology, Apostelgasse 23, Wien, 1030 Austria

(Received 21 November 2014; final version received 3 January 2015)

Despite the recent growth of social science literature concerning the traditional medicine industry in Asia, insights into the contemporary dynamics of so-called 'classical formulae' remain relatively scant, as do studies of small-scale, less capitally intensive and technologically advanced modes of production. This paper seeks to address these gaps by considering a single Sowa Rigpa (Tibetan medicine) formula known as Samphel Norbu, or 'wish-fulfilling jewel', which appears in numerous texts and is today among the most popular Tibetan medicines in the world. Drawing primarily upon long-term fieldwork in Himalayan India, the paper follows Samphel Norbu's rise from exclusivity to popularity and examines the ways it has been transformed in the process, both materially and in its economic, social and clinical significance. The paper shows how Samphel Norbu acts as a marker of inequality between different groups of healers, and examines the role the medicine played in the development of commercial pharmacy and the proliferation of complex medicines. Tracing out wide variations in the medicine's formulation, composition, mode of production and pattern of circulation places the issue of multiplicity at the centre of analysis, and leads to a questioning of the assumptions that underpin the category 'classical formula'. The paper reflects upon the repositioning of such formulae within emergent configurations of knowledge, power, industry and market, and on their transformations and transformative effects both over time and in the present moment.

Keywords: Traditional medicine; Tibetan medicine; classical formula; India; Himalayas

Introduction

As the production and consumption of Asian 'traditional' medicines continue to grow rapidly at national and global scales, academic literature on the topic is increasing in breadth and sophistication. Major foci of recent writings include the role of states, institutions, markets and private firms in processes of commodification and industrialization (Attewell 2007; Banerjee 2009; Bode 2008; Sivaramakrishnan 2006); encounters with techno-science and biomedicine over the assessment and regulation of safety, efficacy and quality (Adams, Schrepf, and Craig 2011; Craig 2011, 2012; Ma 2010; Saxer 2013); and issues relating to Intellectual Property Rights, patenting, innovation, reformulation and new drug development (Gaudillière 2014; Halliburton 2011; Hsu 2009; Patwardhan and Mashelkar 2009; Pordié 2012, this volume; Pordié and Gaudillière 2014; Sujatha 2011; Umemura 2013). Despite the empirical richness and analytical precision this work brings to these important fields, insights into the contemporary dynamics of so-called 'classical formulae' remain relatively scant, as do studies of smaller scale, less capitally intensive and technologically advanced modes of production. To what does the term

*Email: calumblaikie@hotmail.com

‘classical formula’ refer, and what assumptions underpin this category? How and why do medicines ostensibly based upon ancient recipes vary across time and space? How are such medicines being made, circulated and consumed in the present day, and what can their trajectories tell us about the medical systems from which they emerge?

This paper explores these questions with reference to a single Sowa Rigpa¹ formula, Samphel Norbu (*bsam 'phel nor bu*),² or ‘wish-fulfilling jewel’, which appears in numerous formulary texts and ranks among the most popular Tibetan medicines in the world today. Drawing upon long-term fieldwork in Ladakh, Himalayan India (2005–2009), as well as shorter periods amongst Tibetan and Nepali practitioners (2008 and 2011), it follows Samphel Norbu’s transition from exclusivity to ubiquity and examines some of the ways it has been transformed in the process, both materially and in its economic, social and clinical significations. The paper shows how this medicine stands as a marker of inequality between different groups of healers, and examines the role it played in the emergence of commercial pharmacy and the subsequent proliferation of complex Tibetan medicines in late twentieth-century Ladakh. It later argues that, in India, the continued prevalence of well-known Sowa Rigpa formulae, the limited development of new and over-the-counter medicines, and the process of pharmaceutical complexification underway provide important contrasts to the dominant pattern of pharmaceutical innovation, formulaic simplification and commercial protection evident in the Ayurvedic industry.

Tracing out wide variations in Samphel Norbu’s composition, method of production, pattern of circulation and ascribed meaning across time, space and social context leads to the placing of multiplicity at the centre of analysis. The medicine is shown to follow multiple trajectories and to exist simultaneously along several dimensions – social, economic, legal, material, technological and clinical – the intersections of which result in particular forms of the drug being made, with particular sets of effects that are not limited to the therapeutic realm. The paper concludes with some tentative reflections on the categorization and properties of classical formulae, on their repositioning in relation to emergent configurations of knowledge, power, industry and market, and on their transformations and transformative effects both over time and in the present moment.

Locating the classical

The term ‘classical formulae’ is widely used in literature concerning Asian medicines to refer to a group of drugs with apparently ancient textual origins, which are held to be categorically distinct from those formulated in the ‘modern era’. The term often carries with it, implicitly or explicitly, connotations of stability over time and consistency in terms of composition, as well as notions of purity and authenticity, which are contrasted with the opportunistic, market-oriented and epistemologically deracinated characteristics assigned to contemporary commercial herbal formulations (Banerjee 2009). While such distinctions have an important part to play in understanding the dynamics of the Asian traditional medicine industry and market, there is also much that is problematic in how these terms are deployed and in the assumptions that underpin them.

Within India, the category ‘classical formulae’ emerged in the twentieth century as a means of distinguishing Ayurvedic and Unani medicines with long-standing textual histories from those that had been formulated more recently and registered as brands by their manufacturers, which became known as ‘Patent and Proprietary Medicines’. In order to qualify as classical formulae, medicines must be named and their components specified in at least one of more than 50 officially recognized canonical texts. Formulae that meet

these criteria can be made by any manufacturer and are excluded from patent and other forms of commercial protection, whereas Proprietary Medicines are, by definition, the exclusive property of the firm or individual that registered them. There is, however, no precise or unambiguous divide between these categories and no simple conclusions that can be drawn from their emergence or deployment. Many Ayurvedic Proprietary Medicines are very closely related to classical formulae, with only minute adjustments rendering them distinct (Bode 2008, this volume). Others are reformulated within hybrid epistemological frameworks that draw upon both Ayurvedic and biomedical models of disease and therapeutic action, and are profoundly shaped by cutting-edge technology as well as market and regulatory concerns (Pordié this volume; Pordié and Gaudillière 2014). Furthermore, as demonstrated below, the fact that medicines are produced at different sites in accordance with well-known textual formulations by no means implies that they are identical, given that their actual composition, form, method of production, means of circulation and pattern of use vary widely from case to case.

Because Sowa Rigpa was only recognized by the Government of India in 2010, the long and complex process of selecting canonical texts, translating their contents and inscribing them into a National Pharmacopoeia has only just begun. Although the vast majority of Tibetan medicines being made in contemporary India are based upon familiar named formulae, which many would accept are of 'classical' origin, this category remains extremely fuzzy and its analytical utility in question. This paper represents a preliminary attempt to chart this terrain by examining the various trajectories and forms of a single medicine, and in doing so to problematize classical formulae as a distinct, stable and bounded category.

Samphel Norbu: A complex formula

Samphel Norbu, often abbreviated to Samnor, is a 'cold' potency medicine used to counteract certain classes of 'hot' disorder. Among its most important applications is in treating disorders of the *tsa kar* (*rtsa dkar*), or 'white channels', which have a range of dynamic functions largely associated with the brain and nervous system.³ Among other symptoms, *tsa kar* disorders manifest themselves as sleeplessness, twitching or tremors, numbness or pain in the extremities, facial distortion and localized paralysis. Although it is always used in combination with other drugs, Samnor is seen as a highly effective remedy for diseases associated with the *tsa kar* and is greatly valued for this reason by practitioners and patients alike. It is also indicated for *drum bu* (*grum bu*), today widely elided with the biomedical condition of arthritis (Tsona 2000), as well as for complex diseases that have resisted other treatments.

The majority of Sowa Rigpa formulae combine between three and 35 materials of plant, mineral and (to a lesser extent) animal origin. Depending on the text consulted, Samphel Norbu has between 26 and 30 ingredients, which places it towards the complex end of the pharmacological spectrum and on the borderline of a group known as *rinchen rilbu* (*rin chen ril bu*), or 'precious pills' (see Aschoff and Tashigang 2009). Practitioners of Sowa Rigpa working in Ladakh, Tibetan exile, China, Nepal and Europe describe Samnor as a highly effective medicine with a wide range of applications which, although not quite as potent as precious pills, ranks among the most useful drugs in their therapeutic arsenal.

The strong influence of Indian medical knowledge on the development of Sowa Rigpa pharmacology⁴ is reflected in the fact that only two of Samnor's components are native to the Himalayas or the Tibetan plateau. The rest are of tropical and sub-tropical origin,

including eaglewood, red and white sandalwood, nine spices (such as nutmeg and cloves) and three fruits.⁵ All of these are absent from high-altitude zones, but have been in regional or global trade for many centuries.⁶ Furthermore, in most formulations Samnor requires four animal products: pearl, deer musk, elephant bezoar,⁷ and rhinoceros horn. Although substitutes are near-universally used in place of these items today and in many cases have been for a long time, at least in Ladakh, their expense and high level of ascribed efficacy have nevertheless exerted an important influence on the way the medicine is produced. As demonstrated below, the large number, distant origin, rarity, high cost and uneven distribution of Samnor's components have significantly shaped its recent historical trajectories and remain major factors affecting its availability and variability in the present day.

Samphel Norbu in Ladakh: from rarity to ubiquity

In the old days, Samnor was only for kings, ministers and rich people, but these days it is everywhere! (Amchi Tashi Kundey, Personal communication 11th July 2009)

Ladakh is a mountainous region of the north-western Indian Himalayas, bordering both the Tibetan Autonomous Region of China and Pakistan. The area has deep historical and cultural connections with Tibet, and Sowa Rigpa has been practiced there in some form since at least the tenth century (Norboo and Morup 1997, 206). Up until the late 1970s, however, all Ladakhi *amchi* (*am chi* – Sowa Rigpa practitioners) trained through apprenticeships or within family lineages rather than in medical colleges, and made all of their own medicines themselves in the absence of commercial pharmacies (Pordié and Blaikie 2014). They practiced Sowa Rigpa on a part-time basis, treating patients from their localities alongside the pursuit of farming, trading and other livelihood activities. Although highly socially valued, *amchi* work was more often loss-making than lucrative in financial terms (Kloos 2004; Kuhn 1994; Pordié 2003). This fact, combined with the region's largely subsistence economy, remoteness and lack of road transport links⁸ meant that most *amchi* struggled to access non-native medicinal raw materials in any quantity. In the 1960s and 1970s, the majority were obliged to rely upon 20 to 40 medicines in their daily practices,⁹ comprising relatively simple textual formulations as well as family recipes passed on through oral traditions. Some *amchi* also made extensive use of a group of medicines known as *sngo sbyor* ('herbal compounds'), which are listed in the Final Treatise of the *Gyushi* (*rgyud bzhi*), Sowa Rigpa's foundational text (Hofer 2014, 52). Such preparations primarily use alpine medicinal plants, many of them available within Ladakh, and need far fewer imported ingredients than mainstream formulae (Cardi 2005), making them significantly cheaper and easier to produce.

The quantity and range of medicines available to *amchi* were (and remain) important markers of their social status and medical power, as well as factors in its consolidation (Kloos 2004; Pordié 2002). Only those *amchi* with access to considerable financial capital and extensive networks of *materia medica* supply could produce the more complex and costly formulae on a regular basis. Consequently, as the above quote testifies, richer patients and those in urban areas were more likely to be prescribed these kinds of medicine, while ordinary villagers made do with simpler drugs. The recollections of senior Ladakhi *amchi* suggest that in the 1960s many practitioners were aware of Samnor from formulary texts, their teachers and discussions with other *amchi*, and in certain cases were able to produce it in small amounts themselves. However, the possession of such complex drugs in any quantity reflected the differentiation of healers by class, wealth and geographical location, as well as by more fluid factors such as technical skill, ambition and diligence.

The opening of roads from the 1970s onwards contributed to rapid socio-economic change in the region, notably vast improvements in transportation and the rise of cash as the main medium of exchange. Access to *materia medica* improved enormously so that, in theory, every *amchi* could make a wider range of medicines than was formerly possible. In practice, however, many still struggled to access the raw materials needed to produce Samnor, yet they felt increasingly compelled to prescribe it because others were doing so and it was becoming widely sought after by patients. Many *amchi* therefore began to purchase Samnor and other complex drugs, such as Agar 35, from the handful of pioneers who established cottage industry pharmacies in the region during the 1980s and 1990s (Blaikie 2011, 2013). It is argued here that the production and sale of these medicines was a major driver of commercial pharmacy development and the subsequent proliferation and complexification of Sowa Rigpa medicines in the region.

Pharmaceutical proliferation has enabled Ladakhi *amchi* to increase the overall range, quantity and complexity of drugs that they make or buy. Around 50 preparations are now widely stocked in rural areas and upwards of 100 in urban clinics, more than doubling the average range of the 1960s. When in 2008 the author asked ten Ladakhi *amchi*¹⁰ to list their ten most useful medicines, Samnor ranked fourth overall. It was stocked at every urban clinic visited and also in many of the smaller rural practices. However, the shift towards more complex drugs and the apparent democratization of once exclusive medicines have not been simple or universally experienced, and there are some important caveats and secondary effects to explore.

The *amchi* prescribing Samnor most frequently today are those in a position to make a profit from private medical practice: the institutionally trained, the urban based and those 'neotraditional' *amchi* (Pordié 2008) engaged in the lucrative treatment of foreigners. For this group, Samnor is a crucial part of the therapeutic arsenal whose high costs are borne by the relative wealth of their patients and the generally profit-making nature of their medical activities. At the same time, many *amchi* living in the villages make little or no financial profit from their medical practice and struggle to provide even basic drugs to their patients. Although Samnor is held in high regard here also, poorer rural *amchi* use it more sparingly than their urban counterparts, and in some cases very rarely indeed.

A third configuration concerns those *amchi* currently being 'mainstreamed' into public healthcare programmes across Himalayan India, following the momentous decision taken by the Indian government in 2010 to formally recognize Sowa Rigpa. Samnor is thus being prescribed by *amchi* working for the first time in public health facilities, but tight budgetary restrictions mitigate its use in large quantities. Procurement committees involving biomedical doctors and administrators as well as *amchi* must balance its perceived benefits against those of cheaper medicines, and practitioners frequently exhaust their stocks of Samnor much quicker than other drugs. The pattern of Samnor's production and use is thus being shaped by state healthcare budgets and bureaucratic processes, as well as by shifting resource economics and clinical preferences. This offsets its growing popularity to some extent and raises questions over the effects that new state funding and management systems are having on Sowa Rigpa pharmaceutical and clinical practice.

While all Ladakhi *amchi* agree that the recent proliferation of drugs has been hugely beneficial overall, practitioners who are unable to keep up with the mainstream also experience it as a form of pressure. The inability of poorer rural *amchi* to stock complex medicines such as Samnor in any quantity undermines their confidence as healers and their credibility in the eyes of the emerging *amchi* élite, underscoring their marginality as Sowa Rigpa enters a phase of accelerating professionalization. Although according to slightly different criteria than in former times, Samnor thus remains a strong marker of

healer differentiation. The varying frequency of its use reflects new registers of distinction such as institutional certification and profit-making practice, which only partially overlay previously pertinent differences of status, wealth and lineage. Both in recent history and in the present day, the widely differing patterns of Samnor's distribution, social significance and meaning to individuals represent important dimensions of the medicine's multiplicity.

Clinical implications of ubiquity

Today, Samphel Norbu is a very popular medicine across much of the Tibetan cultural area and is increasingly widely used beyond the region also. This transition from exclusive to widespread use is directly linked to changes in its clinical application, as well as in the technological, economic and material factors of its manufacture. In this section the clinical and marketing dimensions of this shift are considered, while the latter fields are explored over the remainder of this paper.

In 2011, Samnor ranked third in terms of output volume at the Men-Tsee-Khang, a medical institute established in Dharamsala (North India) by exiled Tibetans and the pre-eminent producer of Sowa Rigpa medicines in South Asia for the last 40 years (see Kloos 2008, 2010; Saxer 2013). Interviews conducted in 2011 with rural *amchi* and a leading Kathmandu-based pharmacist suggested that in Nepal, as in Ladakh, Samnor is frequently purchased from urban commercial pharmacies by those struggling to make it themselves, as the following quote from a Mustang *amchi*¹¹ illustrates:

Samnor is a very important medicine. I used to make it with my teacher, but these days I don't make it anymore [...] Although it is not so difficult to make, the materials are very difficult to gather all together, so I buy it in Kathmandu and hope that it has everything inside.

Although the author does not have access to sales figures or detailed ethnographic data, the medicine also seems to be in high demand in Tibetan areas of China, as a senior practitioner based in Lhasa explained:¹²

Many people have very stressful lives, working in factories, with high blood pressure and weak hearts, which make problems for the brain and leads to *tsa kar*. This has definitely increased in recent times, and so we need more Samnor.

Although it is still widely used for disorders of the *tsa kar*, Samnor appears today to be prescribed at an earlier stage and for a wider range of problems than in former times, displacing to some extent simpler medicines with similar indications. In urban Ladakh, rather than being reserved for the severest cases Samnor is frequently prescribed in the early phases of *tsa kar* disorders, for *drum bu* and kidney problems, for pain and stiffness in the lower back, hips and limbs, as well as for complex disorders that have not responded well to other treatments. Increased availability of the medicine has clearly been accompanied by a broadening of its therapeutic application.

As Sowa Rigpa becomes increasingly well-known worldwide, the use of Samnor is no longer tightly circumscribed by geography or medical epistemology. It is frequently prescribed at permanent clinics and by visiting *amchi* across Asia, Europe, the Americas and Australia, while internet sales make it universally available.¹³ Alongside its prescription within conventional Sowa Rigpa disease categories, several *amchi* well-known to the author have remarked on its usefulness in the West for the treatment of biomedically-

defined diseases such as arthritis, whose prevalence and lack of effective biomedical treatment presents a large potential market, and for those recovering from strokes, as well as for broadly-defined symptoms associated with stress, exhaustion, mental disturbance and old age. Furthermore, the medicine can today be found in 'holistic' New Age publications and promoted on websites for a wide range of biomedical conditions that do not have straightforward correlates in Sowa Rigpa theory. For example, Corradi (2014, 203, 209) mentions Samnor as a treatment for Parkinson's and Alzheimer's, while a Western Tibetan doctor based in the USA expands this to include a host of other neurological conditions, including Muscular Dystrophy and epilepsy.¹⁴ The Tibetologist Robert Thurman recently extolled Samnor's virtues as a 'very good tonic' in an interview with *New York Magazine* (2010), suggesting its use on a regular basis in a preventive capacity,¹⁵ although no ethnographic data are currently available to confirm this manner of usage.

The case of Samnor shows how there can be unforeseen and poorly understood effects on therapeutic, pharmaceutical and ecological systems when complex classical formulae with formerly precise indications are recast with a wider range of applications, moving from the homes of the wealthy in Ladakh and Tibet to the metropolises of India and China, and outwards into the rapidly expanding global market for 'Complementary and Alternative Medicines'. Samnor's clinical applications are multiplied through the coexistence of older and more recent patterns of prescription and use. Rural *amchi* in Ladakh continue to use it sparingly and specifically, in cases of severe *tsa kar* and complex disorders that have resisted treatment with simpler drugs. At the same time, practitioners in urban Ladakh and other Indian cities prescribe Samnor much more readily for a wider range of diagnoses, while Western consumers take the same medicine to gain relief from a whole raft of symptoms, including those based on biomedical categories.

Samnor multiplied

In a crowded bus bouncing through the Kathmandu valley in the winter of 2011, a senior Nepali *amchi* told the author how he had once made a single kilogram of Samphel Norbu exactly in accordance with the formula found in a popular formulary text, the *Dutsi Bumzang*.¹⁶ It was only because he had inherited several valuable materials such as musk, pearl and rhinoceros horn from his father that he was able to assemble all 30 components in the correct quantities. He proclaimed the medicine to be of excellent potency and noticeably more effective than other versions he had made before or since using substitutes. However, he also estimated the total monetary value of that single kilogram to be a staggering US\$2500, or US\$7.5 per 3 g dose.¹⁷ This story illustrates the strong connection between the rarity, price and perceived efficacy of *materia medica* in Sowa Rigpa, makes the case against producing Samnor in accordance with the 1959 *Dutsi Bumzang* formulation, and highlights one of the main causes of its variability at any given historical moment.

Although Sowa Rigpa pharmacology is firmly grounded in a clearly delineated logical framework (Cardi 2005; Dash 1988; Meyer 1981), the tradition's diffusion across a wide geographical range has necessitated considerable flexibility and adaptability within that framework (Craig 2012; Hofer 2014; Saxer 2013). Locally-specific substitution patterns emerge from the ambiguity of identifications in the canonical texts (Clark 2000; Sabernig 2011), from spatial, ecological and trading conditions, and from currents of medical tradition, which normalize particular practices over time while also facilitating the introduction of new ideas (Blaikie 2013; Scheid 2007). Although based upon the same textual formula, the actual composition of different batches of Tibetan medicine varies widely.

Many Samnors result from combinations of substitution, omission and the alteration of proportions, as well as from the addition (or not) of ritually empowered substances.

The substitution of costly, rare and illegal raw materials was a major theme that emerged during a workshop involving 40 *amchi* from India, Nepal and China held in Kathmandu in 2011 (Blaikie et al. in press). Alternatives to three of Samnor's most problematic components were discussed: two for rhinoceros horn, two for musk and five for elephant bezoar. Almost all of these were accepted by those present as having similar properties to the 'originals', despite their varied sources.¹⁸ Few, if any, of the assembled *amchi* were using the original materials and there was unanimous acceptance of the urgent need to agree upon the most appropriate substitutes for universal use. By combining the three originals and nine substitutes discussed at this workshop alone, 54 variants of Samphel Norbu could be made. The possibilities extend much further given that other materials besides these three may also be substituted, and many of the components can also be varied proportionally or omitted altogether. Thus, several hundred Samnor avatars can emerge from a single written formula.

Although most of the substitutes being used in Samnor production are well-known and widely accepted as valid, not all are available everywhere and nor are they ranked in the same order of preference or used in the same way. This renders each version open to debate in terms of its quality and efficacy, be the argument based upon the highest possible degree of potency or textual fidelity, preferences inscribed within localized currents of tradition, pragmatic concerns over availability, cost and legality, or discourses influenced by biomedical epistemology, industrial methods or biodiversity conservation. In many production sites formulation is increasingly being influenced by the concerns of national and global consumers, by more stringent regulatory regimes and conservation legislation. For example, the Men-Tsee-Khang phased out the use of controlled animal products in 2004 and replaced them with what they considered the most appropriate substitutes. As the head pharmacist explained: 'Western consumers don't want animal products in their medicines and international regulations forbid them, so it no longer makes sense to use them'. The permanent alteration of every formula that requires such materials, including Samnor, appears as a pragmatic policy response to the ecologically and economically disastrous use of endangered animal parts in medicines. However, the substitutes selected by Men-Tsee-Khang do not meet with universal approval and several *amchi* known to the author are quietly critical of some of their choices, hinting towards the fault lines as well as the coalitions that characterize Sowa Rigpa's contemporary plurality.

Although studies into the matter remain preliminary, it is germane to note that the textual formula for Samphel Norbu has changed over the last half century in response to prevailing conditions. For example, 10 grams of musk are needed to make one kilogram of Samnor according to the *Dutsi Bumzang* (1959), while the 1988 formulary by Bhagwan Dash lists only three grams. The 1959 volume also lists pearl as one of the main ingredients, whereas subsequent formulary texts tend to replace this costly component with its widely-used substitute of oyster shell. A well-known recent text from Lhasa (Sonam Dondrup 2000) lists the oyster shell substitute as well as replacing rhinoceros horn with bull's horn, but somewhat surprisingly retains both musk and elephant bezoar in the formula, albeit in reduced quantities of two grams each. An even more recent compendium published in India (Ridrak 2003, 278) refers to the medicine as Samphel 25, lists oyster shell instead of pearl and replaces rhinoceros horn with the widely-used deer horn substitute, but also still includes musk and elephant bezoar in the formula. Another illustrative example is provided by an English language formulary text whose printed version of the

Samnor formula includes deer's antler, elephant's gall stone, musk and cannabis (Tsarong 1986, 77). The more recent online version of this text¹⁹ omits these four components altogether, presumably to avoid legal complications and criticism from conservationists, leaving a total of 26 ingredients.

The texts discussed here occupy a range of statuses and levels of usage, and there are many others that could also be usefully considered. However, the available examples do suggest a willingness to adapt this classical formula to changing circumstances, but only to a certain degree and in a way that lags behind real-world pharmacy practice. The use of musk and elephant-derived materials has declined significantly over recent decades and many *amchi* have never used them at all.²⁰ However, such highly valued materials appear to have considerable inertia in the formula and have thus been reduced in volume rather than removed or replaced, which is consistent with the widely acknowledged principle that even a tiny amount of an important ingredient is beneficial (Dash 1997, 109). Those writing recent texts must know that substitutes will almost always be used in practice (Sabernig 2011), but appear unwilling to commit to any one of these. This may be due to the lack of any authoritative institutional advocacy in favour of certain substitutes, as participants at the Kathmandu workshop suggested, or because the authors are unwilling to provoke controversy or attract criticism on account of their choices. Whatever the reasons behind these choices, the variety of Samnor formulations coexisting in the present day contributes further to the medicine's multiplicity, in addition to the various substitutions and proportional adjustments discussed above.

Yet another field of Samphel Norbu's variability emerges through the addition (or omission) of ritually empowered substances. Sowa Rigpa theory posits the potency and effect of medicines as existing along three dimensions. Material potency (*rdzas gyi nus pa*) is both the most crucial for determining efficacy in emic terms and the most comprehensible to biomedical science. However, it operates alongside potencies generated through the recitation of mantra during medicine preparation (*sngags gyi nus pa*) and through high-level meditation practices associated with Tantric Buddhism (*ting nge dzin gyi nus pa*). Esoteric rituals known as *mendrup* (*sman sgrub* – 'accomplishing medicine'²¹), often involving large numbers of people and lasting for a week or more, are understood to remove imperfections from medicines on the material plane while also imbuing them with greater healing potential in the latter two registers of potency. A particularly powerful medicine can be made during these rituals (*sman sgrub gyi sman*) and by mixing tiny amounts of this into other medicines through a practice known as *phabs rgyun*, the benefits of ritual empowerment can be spread across an entire range of drugs. However, *mendrup* rituals must be led by adepts initiated into certain spiritual lineages, which render them expensive and difficult to organize. This author knows of only three places in India where they take place on a regular basis, which limits the instances in which Samnor benefits from the ritual and the addition of empowered substances.

All Men-Tsee-Khang medicines contain *phabs rgyun* materials associated with the Dalai Lama and several other august lineages, granting them strong religious and political significance as well as therapeutic potency. Although it is not specific to Samnor, the inclusion of ritually empowered materials potentially offers a 'unique selling point' in marketing terms, but thus far it has remained implicit and unpublicized. In the context of increasing industrialization and regulatory scrutiny of Sowa Rigpa in India, spaces are opening up in which such practices could become explicit marketing tools, but may also become targets of criticism for contaminating pharmaceutical products with complex, non-standardized substances whose non-material properties are not recognized – and are indeed disparaged – by biomedical science and mainstream industrial practice. Although

little actual regulation is taking place on the ground as yet, such ontological dissonance poses interesting questions for the way Samnor and other medicines are made, regulated, assessed and marketed in the wake of Sowa Rigpa's recognition.

Industrializing Samnor

Due largely to Sowa Rigpa's long history of marginality and neglect within India, its pharmaceutical industry is very much in its infancy. Although the Dharamsala Men-Tsee-Khang has steadily expanded its medicine production over recent decades and today supplies a network of 48 clinics, making it by far the largest Sowa Rigpa pharmacy in the region, capital investment remains relatively limited, the scale of production small and the technology basic compared to the Ayurvedic industry or to Sowa Rigpa in China and Bhutan. There has been very little new drug development, the vast majority of medicines are based upon shared formulae and are prescribed by physicians rather than being aggressively marketed for over-the-counter sale. However, there is mounting evidence to suggest that this nascent industry is entering a phase of major transformation, particularly following the recognition that was granted in 2010. This section assesses the conditions under which Samphel Norbu is currently being made in India and considers some of the implications of increasing professionalization, industrialization, commodification and regulation for its manufacture – issues around which there is growing tension and debate.

At present, batches of Samnor are being produced simultaneously at a wide range of scales and technological levels across India. In Ladakhi villages, *amchi* make one kilogram at a time in their homes, grinding it on stone and rolling out the pills by hand. Under the radar of any regulatory authority, they prescribe it to local patients in return for small amounts of cash, gifts in kind, or kind words. In the nearby town, cottage industry pharmacists use simple machines to produce five to ten kilogram batches. Some of this is prescribed to patients in their own private clinics, some is sold at a small profit to rural *amchi* unable or unwilling to make their own, and increasing amounts are sold to the local Health Department for distribution to *amchi* working in public health facilities. At the Men-Tsee-Khang, meanwhile, Samnor is made in batches of 50 kilograms or more using large teams of labourers and a selection of mid-level grinding, pill making and drying machines (see Kloos 2010; Saxer 2013, 76, 84). Finished products pass through the in-house Quality Control Department, where they are assessed using hybrid methods drawing upon both Sowa Rigpa and biochemistry before being packaged and distributed to clinics across South Asia and beyond. Alongside the diversity of formulation and composition outlined above, these coexisting methods of manufacture, levels of technology, means of assessment and patterns of distribution arguably result in a larger number of Samnor variants being produced today than ever before. However, the mounting efforts to professionalize Sowa Rigpa, mainstream it into the public health system and bring medicine production under national regulatory regimes are already beginning to problematize and counteract this multiplicity.

One outcome of increasing the scale of Samnor manufacture and concentrating it at a smaller number of sites directly concerns the associated loss of its specificity. Under conditions of small-scale manufacture, *amchi* often adapt the formula to local climatic conditions, taking into account altitude, temperature and humidity. Some also make several variants of the medicine itself, adjusting for different phases of *tsa kar* or for patients with differing constitutions. As a senior Tibetan *amchi* commented with regard to China 'Now each factory makes a general Samnor, always according to the same recipe. For some people in some places this will of course be useful, but for others it will not be very

effective.’ Industrializing production thus necessitates the sacrifice of pharmacological fine-tuning and results in generalized medicines whose efficacy may be compromised for certain individuals and under certain environmental conditions.

The current variability of Samnor’s constitution also raises interesting challenges for attempts to standardize it and regulate its manufacture in India. A committee is currently being convened to begin work on a National Sowa Rigpa Pharmacopoeia, but which of the myriad possible versions will end up being inscribed within this landmark document and why? Whose preferred substitutes will become officially sanctioned, and how will these choices be influenced by concerns of cost, legality, availability and sustainability? To what extent will concepts of safety and efficacy derived from Sowa Rigpa be accepted or challenged by those drawn from Ayurveda or biomedical science? There is much at stake and it remains to be seen how such decisions will be made, by whom, and what influence they will subsequently have on pharmaceutical practice and products.

In the context of a newly legalized and potentially lucrative industry, Samnor’s multiplicity also puts it in an interesting position in terms of property rights and legal protection. Ladakhi and Tibetan exile *amchi* are operating under the assumption that such formulae cannot be privately protected due to their textual basis and centuries of prior use. While these facts may indeed offer some protection, it must also be considered that each Samnor modulation that results from the use of particular substitutes, the variation of proportions, the inclusion of ritually-empowered substances or the use of particular manufacturing methods is now potentially a candidate for ‘proprietary medicine’ status, if not full patent protection. Indeed, the Ayurvedic industry is replete with examples of firms manipulating classical formulae in minor ways in order to gain exclusive rights to produce, brand and market those variants (Banerjee 2009; Bode 2008, this volume; Patwardhan and Mashelkar 2009; Sahoo, Manchikanti, and Dey 2011). Although there is as yet no sign of the main Sowa Rigpa pharmacies moving towards a proprietary model, there is no question that newfound legality and growing interest from Ayurvedic firms and research institutes has opened this possibility up (AYUSH News 2011), and that powerful medicines with broad indications and good marketing potential are tempting targets for such commercial protection regimes.

The case of Samnor also offers a concrete example of what appears as a general trend towards pharmaceutical complexification in Sowa Rigpa. As access to resources, capital and technology has increased, the range of medicines being produced has widened and more complex medicines are increasingly favoured. The growing popularity of ‘precious pills’, some of which have more than 70 components, further underscores this movement (Craig 2012; Craig and Adams 2008; Prost 2008; Saxer 2013). Such a progression runs counter to the trend towards the use of simpler formulae in the Ayurvedic industry, and thus calls into question the assumption that simplification and deracination are inherent to pharmaceuticalization processes (cf. Banerjee 2009). Drugs with fewer components make it easier to demonstrate safety, quality and efficacy in ways acceptable to techno-science and consumers. They are better able to side-step or accommodate increasingly stringent national and global regulatory instruments such as Good Manufacturing Practices (GMP), CITES, TRIPS, and the drug control regimes of the EU and USA (Bode 2008; Pordié this volume; Pordié and Gaudillière 2014). However, although there is evidence of simplified Sowa Rigpa drugs being used in the West (Millard 2008), there is little sign of this kind of reduction happening in India thus far. Complex medicines with more than 10 components, based on well-known recipes and prescribed by physicians, remain by far the most popular Tibetan medicines, while market and regulation-driven simplification has not yet emerged.²² Despite the absence of this kind of reformulation, however, one

must question the extent to which Samnor, with upwards of 26 components, can actually continue along its path to growing popularity outside the Tibetan-speaking world and onto the global stage.

Furthermore, even at current levels of demand there is a real risk that this medicine could become a victim of its own success, with implications for the sustainability of its constituent natural resources and indeed for the formulation of the medicine itself. Several core Samnor components, notably eaglewood and sandalwood, are increasingly under pressure, leading to higher prices, tighter legal protection, lower quality and shady practices of adulteration. The industrialization of any herbal medicine relies on the increased availability of its ingredients. If these are not forthcoming there is little option but to reformulate, which can be problematic if the materials concerned are central to the medicine's identity and therapeutic activity, as in the case of Samnor.

Contemporary classics

The preliminary observations reported here have shown how the formula for Samphel Norbu has changed over the last half century, with different formulary texts adopting substitutes or altering the proportions of the components in response to ever-changing external conditions, as well as to regionally-specific conventions and individual preferences. From each of these coexisting formulations, in turn, emerge a large number of actual medicinal compounds, each reflecting the temporal, geographical, ecological, social and economic positioning of its maker. Rather than concluding, therefore, that these multiple versions of Samnor represent the corruption of classical purity or inauthentic approximations of a static ideal, this author takes the opposite view: classical formulations emerge as medicines within fields of practice and dynamic currents of tradition in Volker Scheid's (2007) sense, and are thus always contemporary and valid at the moment of their production. Such medicines are arguably better approached as contingent entities, which although dependent upon their material existence in order to exert healing effects upon suffering mind-bodies, are not reducible to it. Each batch of Samnor appears as an assemblage of heterogeneous components, emerging at a particular intersection of ecological, economic, trading, technological, political, ritual, religious, social, medical and knowledge systems, as well as from localized currents of tradition filtered through individual agency and daily practice. All of these elements are encoded within each version of the medicine, both physically and symbolically, and may subsequently be unpicked and interpreted in a range of ways by different actors, including patients seeking relief from variously defined health problems in widely differing contexts.

This paper has also shown how, in addition to its role as a healing object, Samnor has served as a marker of healer differentiation, shifting in its social meaning along with its pattern of clinical deployment as the medical tradition reconfigured itself in relation to wider socio-economic and medical change. Furthermore, the wishes of poorer and predominantly rural Ladakhi *amchi* to stock and prescribe Samnor became an important driver of commercial pharmacy development in the region, rather than being a by-product of it. Thus, Samnor's move from exclusivity to ubiquity has been the result of its social significance as well as its renowned therapeutic properties, adding weight to the argument that it is necessary to map out the multiple trajectories, itineraries and forms of a medicine in dynamic relation to one another, rather than to consign it to an ostensibly distinct category that may rest on misplaced assumptions about its origins, historical evolution, social significance and properties, both medical and otherwise.

According to the biomedical molecular model of pharmaceuticals, purity is the crucial factor determining a medicine's quality and is readily quantifiable. Similar patterns are emerging in the high technology world of the contemporary Ayurvedic industry, where mixtures of fewer than ten raw materials are formulated, standardized, replicated on a vast scale and meticulously quality controlled before being sold over-the-counter throughout and beyond South Asia (Pordié this volume). In the case of Samnor and other complex Sowa Rigpa medicines in India, questions of quality, potency, appropriate use and efficacy have until now been confined to the individual or institutional level. *Amchi* could debate the ideal substitutes and proportions to use, or dispute the relative merits of manual or mechanical methods, but each could make what they saw as 'good medicine' so long as they remained consistent with the logical framework and broad parameters set out in the texts and followed in streams of practice, and so long as the medicine showed signs of efficacy in practice. Although the pace and depth of change remains to be seen, there is no question that the integration of Sowa Rigpa into the Department of Ayurveda, Yoga, Unani, Siddha and Homeopathy (AYUSH), and the subjection of its industry to increased scrutiny under the Indian Drugs and Cosmetics Act and GMP legislation, will bring new measures of acceptability, quality and efficacy to the fore, and bring new constellations of power to bear on the production, circulation and prescription of Samphel Norbu in the years to come.

Acknowledgements

Although they are too numerous to name, the author wishes to thank all the Sowa Rigpa practitioners he has met from Ladakh, Dharamsala, Nepal and the Tibetan areas of China for their invaluable help and insights during the researching of this paper. Any mistakes or misinterpretations are entirely the author's own. Thanks go to Laurent Pordié and Anita Hardon for organizing the conference panel for which this paper was originally prepared, and for their diligence in turning that panel into this special issue. The author also expresses his gratitude to those who accompanied and advised him during the research phase, or commented on earlier drafts of this paper, namely Barbara Gerke, Sienna Craig, Theresia Hofer, Maarten Bode, Mingji Cuomo and Stephan Kloos.

This work was supported by the Economic and Social Research Council of Great Britain under Grant PTA-1031-2006-00452; the French National Research Agency under Grant ANR-09-SSOC-019-02; and the European Research Council under Grant ERC 336932.

This research was conducted according to the ethical guidelines of the French National Research Agency, the European Research Council and the Austrian Academy of Sciences.

Conflicts of interest: None.

Notes

1. Sowa Rigpa is the Anglicized rendering of the Tibetan *gso ba rig pa* ('science of healing'), which is the vernacular term for the tradition best known worldwide as 'Tibetan medicine'.
2. Tibetan terms are rendered in simplified phonetic form throughout the text, with transliterations according to the Wylie (1959) system given in parentheses after the first usage.
3. For detailed discussion of 'channels' in Sowa Rigpa theory and practice, see Garrett and Adams (2008); and Gerke (2013).
4. See: Emmerick (1977); Martin (2007); and Meyer ([1981] 2002).
5. *Terminalia chebula*, *Terminalia belerica* and *Emblica officinalis* are crucial components in many Ayurvedic and Sowa Rigpa remedies, implying a very long history of trade in the region.
6. For example, cloves and nutmeg came only from the Moluccas until the eighteenth century, but had been in global trade for at least 2000 years prior to that (Ellen 2003, 4).
7. There is some confusion over the identification of the material known in Tibetan as *gi wang*. As Sabernig (2011, 89) explains, different texts refer to it as elephant's bezoar, enterolith, intestinal calculi, gallstone or bile.

8. Despite centuries of involvement in overland trade routes linking China, Tibet, the Indian sub-continent and Central Asia (Rizvi 1999), Ladakh did not have a reliable road link to the outside world until well into the 1970s (Demenge 2010). Prior to that, it took several weeks of trekking to reach any major settlements, rendering small-scale trade extremely limited.
9. These figures are based on interviews with more than 20 *amchi* who were active during the period in question.
10. This sample comprised roughly equal numbers of older and younger practitioners, of those trained within and outside of formal institutions, and of those working in rural and urban settings. Notably, Samnor ranked higher for urban and formally trained practitioners than for their rural counterparts.
11. Interview 3, 8 December 2011.
12. Interview 1, 9 December 2011.
13. Several providers of Tibetan medicines on a global scale (such as the Dharamsala Men-Tsee-Khang) require consultation with a recognized physician prior to supplying medicines over the internet. However, there are websites through which Samnor and other complex medicines can be sourced without a prescription, for example: <http://kunphen.tripod.com/catalogue.html>
14. <http://www.tibetandoctors.com/tibetan-pills>
15. Traditional medicines marketed as tonics or dietary supplements are in many ways the perfect herbal pharmaceutical commodity for industrial firms due to their recurrent demand and non-specific effects, as well as their ability to side-step more stringent drug legislation (Bode 2008, this volume; Nichter [1989] 1996).
16. The *Dutsi Bumzang* (*Bdud rtsi'i bum bzang* - 'Excellent Vase of Elixirs') is a compilation of 125 formulae first published in Lhasa in 1959 by the renowned Tibetan practitioner, scholar and teacher Khyenrab Norbu. It was widely reprinted across the region (for example, Norbu 1968) and was often copied out by hand by Ladakhis unable to purchase a printed copy. The book remains well known in the present day and is a commonly referred to benchmark for classical formulations across the Tibetan cultural area (Hofer 2014, 56).
17. In Ladakh, a 3 g dose of 'ordinary' Samnor costs around five rupees (US\$15 cents).
18. Substitutes for elephant bezoar, for example, can be obtained from cows and several other animals, from minerals, from an algae that grows in certain fresh water springs, and from a common Himalayan plant.
19. <http://www.jcrowns.com/handbook.html#samphelnorbu>
20. In Ladakh this is particularly true for the younger generation and for poorer rural practitioners.
21. For a detailed discussion of *mendrup* see Garrett (2009) and Craig (2011).
22. The Dharamsala Men-Tsee-Khang has developed a range of herbal teas, supplements and cosmetics known as 'Sorig Products'. While this move does echo developments in the Ayurvedic industry in certain ways, Sorig Products are entirely separate from the mainstream of medicine production, and show no sign of replacing clinical supply as the institute's main industrial focus.

References

- Adams, V., M. Schrempf, and S. R. Craig, ed. 2011. *Medicine between Science and Religion: Explorations on Tibetan Grounds*. New York: Berghahn.
- Aschoff, J., and T. Y. Tashigang. 2009. *Tibetan Jewel Pills: With some Remarks on Consecration (Byin rlabs) of the Medicines*. Ulm: Fabri Verlag.
- Attewell, G. 2007. *Refiguring Unani Tibb: Plural Healing in Late Colonial India*. New Delhi: Orient Longman.
- AYUSH News. 2011. "Health Ministry to notify recognising Sowa Rigpa after amending D&C Rules." <https://ayushnews.wordpress.com/2011/12/06> accessed 12 January 2012).
- Banerjee, M. 2009. *Power, Knowledge, Medicine: Ayurvedic Pharmaceuticals at Home and in the World*. Hyderabad: Orient Blackswan.
- Bode, M. 2015. Assembling cyavanaprāsh, Ayurveda's best-selling medicine. *Anthropology & Medicine*, DOI 10.1080/13648470.2015.1005285
- Bode, M. 2008. *Taking Traditional Knowledge to the Market: The Modern Image of the Ayurvedic and Unani Industry*. Hyderabad: Orient Blackswan.
- Blaikie, C. 2013. "Currents of Tradition in Sowa Rigpa Pharmacy." *East Asian Science, Technology and Society* 7: 425–451.

- Blaikie, C. 2011. "Critically Endangered? Medicinal Plant Cultivation and the Reconfiguration of Sowa Rigpa in Ladakh." *Asian Medicine* 5: 243–272.
- Blaikie, C., S. Craig, T. Hofer, and B. Gerke. 2014. "Co-producing Efficacious Medicines: Collaborative Ethnography with Tibetan Medicine Practitioners in Kathmandu, Nepal." *Current Anthropology*, in press.
- Cardi, F. 2005. "Principles and Methods of Assembling Tibetan Medicaments." *Tibet Journal* 30 (4): 93–110.
- Clark, B. 2000. "Problems in Identifying and Translating *materia medica* Used in Tibetan Medicine." *AyurVijnana* 7
- Corradi, M. 2014. *Cures without Side Effects: Practical Healing Manual of the Most Essential and Effective Biotherapy Treatments*. London: Jaborandi Publishing.
- Craig, S. 2011. "From Empowerments to Power Calculations: Notes on Efficacy, Value and Method." In *Medicine between Science and Religion: Explorations on Tibetan Grounds*, edited by V. Adams, M. Schrempf and S. Craig, 215–244. New York: Berghahn.
- Craig, S. 2012. *Healing Elements: Efficacy and the Social Ecologies of Tibetan Medicine*. Berkeley: University of California Press.
- Craig, S., and V. Adams. 2008. "Global Pharma in the Land of Snows: Tibetan Medicines, SARS, and Identity Politics across Nations". *Asian Medicine* 4: 1–28.
- Demenge, J. 2010. "Road Construction, Dependency and Exploitation in Ladakh, North India." *Journal of Workplace Rights* 15 (3): 303–326.
- Dash, B. 1997. *Tibetan Medicine: Theory and Practice*. New Delhi: Sri Satguru Publications.
- Dash, B. 1988. *Formulary of Tibetan Medicine*. New Delhi: Classics India Publications.
- Ellen, R. 2003. *On the Edge of the Banda Zone: Past and Present in the Social Organisation of a Moluccan Trading Network*. Honolulu: University of Hawaii Press.
- Emmerick, R. 1977. "Sources of the *rgyud bzhi*". *Zeitschrift der Deutschen Morgenlaendischen Gesellschaft* 3 (2): 1136–1141.
- Garrett, F. 2009. "The Alchemy of Accomplishing Medicine (*smān sgrub*): Situating the Yuthok Heart Essence in Literature and History". *Journal of Indian Philosophy* 37: 207–230.
- Garrett, F., and V. Adams. 2008. "The Three Channels in Tibetan Medicine". *Traditional South Asian Medicine* 8: 86–114.
- Gaudillière, J. P. 2014. "An Indian Path to Biocapital? The Traditional Knowledge Digital Library, Drug Patents, and the Reformulation Regime of Contemporary Ayurveda". *East Asian Science, Technology and Society*. Doi: 2717469.
- Gerke, B. 2013. "On the 'Subtle Body' and 'Circulation' in Tibetan Medicine." In *Religion and the Subtle Body in Asia and the West: Between Mind and Body*, edited by G. Samuel and J. Johnston, 83–99. London and New York: Routledge.
- Halliburton, M. 2011. "Resistance or Inaction? Protecting Ayurvedic Medical Knowledge and Problems of Agency." *American Ethnologist* 38 (1): 86–101.
- Hofer, T. 2014. "Foundations of Pharmacology and the Compounding of Tibetan Medicines." In *Bodies in Balance: The Art of Tibetan Medicine*, edited by T. Hofer, 46–63. Seattle and London: University of Washington Press.
- Hsu, E. 2009. "Chinese Propriety Medicines: An Alternative Modernity? The Case of the Antimalarial Substance Artemisinin in East Africa." *Medical Anthropology* 28 (2): 111–140.
- Kloos, S. 2010. "Tibetan Medicine in Exile: The Ethics, Politics and Science of Cultural Survival." PhD dissertation, University of California, Berkeley.
- Kloos, S. 2008. "The History and Development of Tibetan Medicine in Exile". *Tibet Journal* 33 (3): 15–49.
- Kloos, S. 2004. *Tibetan Medicine amongst the Buddhist Dards of Ladakh*. Vienna: ATBS.
- Kuhn, A. 1994. "Ladakh: A Pluralistic Medical System under Acculturation and Domination." In *Acculturation and Domination in Traditional Asian Medical Systems*, edited by D. Sich and W. Gottschalk, 61–73. Stuttgart: F. Steiner Verlag.
- Ma, E. J. 2010. "The Medicine Cabinet: Korean Medicine under Dispute." *East Asian Science, Technology and Society* 4: 367–382.
- Martin, D. 2007. "An Early Tibetan History of Indian Medicine". In *Soundings in Tibetan Medicine: Anthropological and Historical Perspectives*, edited by M. Schrempf, 307–327. Leiden: Brill.
- Meyer, F. [1981] 2002. *Le système médical Tibétain Gso-Ba-Rig-Pa*. Paris: CNRS Editions.
- Millard, C. 2008. "The Integration of Tibetan Medicine in the United Kingdom: The Clinics of the Tara Institute of Medicine". In *Tibetan Medicine in the Contemporary World: Global Politics of Medical Knowledge and Practice*, edited by L. Pordié, 189–214. Abingdon: Routledge.

- Nichter, M. [1989] 1996. "Pharmaceuticals, the Commodification of Health and Healthcare-Medicine Use Transition." In *Anthropology and International Health: South Asian Case Studies*, edited by M. Nichter and M. Nichter. Amsterdam: Overseas Publishers Association.
- Norboo, T., and T. Morup. 1997. "Culture, Health and Illness in Ladakh". In *Recent Research on Ladakh 6: Proceedings of the Sixth International Colloquium on Ladakh*, edited by H. Osmaston and N. Tsering. New Delhi: Motilal Banaradsidass Publishers.
- Norbu, K. 1968. *Sbyor dpe bdud rtsi'i bum bzang*. Dharamsala: Tibetan Medical Centre.
- New York Magazine. 2010. "Robert Thurman Enjoys Tempeh Bourguignon". http://nymag.com/daily/intelligencer/2010/12/robert_thurman_enjoys_tempeh_b.html
- Patwardhan, B., and R. Mashelkar. 2009. "Traditional Medicine-inspired Approaches to Drug Discovery: Can Ayurveda Show the Way Forward?" *Drug Discovery Today* 14: 804–811.
- Pordié, L. 2015. Hangover free! The Social and Material Trajectories of PartySmart. *Anthropology & Medicine*, DOI: 10.1080/13648470.2015.1004773.
- Pordié, L. 2012. "Sortir de l'impasse épistémologique. Nouveaux médicaments et savoirs traditionnels." *Sciences sociales et sante* 30 (2): 93–103.
- Pordié, L. 2008. "Introduction - Tibetan Medicine Today: Neo-traditionalism as an Analytical Lens and a Political Tool". In *Tibetan Medicine in the Contemporary World: Global Politics of Medical Knowledge and Practice*, edited by L. Pordié, 3–33. Abingdon: Routledge.
- Pordié, L. 2003. *The Expression of Religion in Tibetan Medicine: Ideal Conceptions, Contemporary Practices and Political Use*. Pondicherry: FIP.
- Pordié, L. 2002. "La pharmacopée comme expression de société: Une étude himalayenne." In *Des sources du savoir aux médicaments du futur*, edited by J. Fleurentin, G. Mazars and J. Pelt, 183–194. Paris: Editions IRDSFE.
- Pordié, L., and C. Blaikie. 2014. "Knowledge and Skill in Motion: Layers of Tibetan Medical Education in India." *Culture, Medicine and Psychiatry* 38 (3): 340–368.
- Pordié, L., and J. P. Gaudillière. 2014. "The Reformulation Regime in Drug Discovery: Revisiting Polyherbals and Property Rights in the Ayurvedic Industry." *East Asian Science, Technology and Society* 8: 57–79.
- Prost, A. 2008. *Precious Pills: Medicine and Social Change among Tibetan Refugees in India*. Oxford: Berghahn Books.
- Ridrak Dawa Menpa. 2003. *Key to the Revealed Secrets of the Practical Preparation of Sowa Rigpa's Formulae (bod kyi gso ba rig pa las sman rdzas sbyor bzo'i lag len gsang sgo 'gyed pa'i lde mig)*. Delhi: Rig Drag Publication.
- Rizvi, J. 1999. *Trans-Himalayan Caravans: Merchant Princes and Peasant Traders in Ladakh*. Oxford: Oxford University Press.
- Sabernig, K. 2011. "The Substitution of Rare Ingredients in Traditional Tibetan Medicine on the Basis of Classical Tibetan Texts, their Use in Modern Formularies, and a Case Study from Amdo/Qinghai." *Curare* 34 (1+2): 83–96.
- Sahoo, N., P. Manchikanti, and S. H. Dey. 2011. "Herbal Drug Patenting in India: IP Potential." *Journal of Ethnopharmacology* 137 (1): 289–297.
- Saxer, M. 2013. *Manufacturing Tibetan Medicine. The Creation of an Industry and the Moral Economy of Tibetanness*. Oxford: Berghahn Books.
- Scheid, V. 2007. *Currents of Tradition in Chinese Medicine 1626–2006*. Seattle: Eastland Press.
- Sivaramakrishnan, K. 2006. *Old Potions, New Bottles: Recasting Indigenous Medicine in Colonial Punjab 1850-1945*. New Delhi: Orient Longman.
- Sonam Dondrup (bsod nams don grub). 2000. *Sman sbyor lag len gyi gdams pa myong grub ma*. Lhasa: Mi rigs dpe skrun khang.
- Sujatha, V., 2011. "What could 'Integrative' Medicine Mean? Social Science Perspectives on Contemporary Ayurveda." *Journal of Ayurveda and Integrative Medicine* 2 (3): 115–124.
- Tsarong, T. 1986. *Handbook of Traditional Tibetan Drugs: Their Nomenclature, Composition, Use and Dosage*. Kalimpong: Tibetan Medical Publications.
- Tsona, Lobsang Tsultrim. 2000. "Arthritis: Its Causes and Treatment in Tibetan Medicine." *sMan rTsis Journal* 2 (2): 49–59.
- Umemura, M. 2013. "Crisis and Change in the System of Innovation: The Japanese Pharmaceutical Industry during the 'Lost Decades', 1990–2010." *Business History* 56 (5): 816–844.
- Wylie, T. 1959. 'A Standard System of Tibetan Transcription'. *Harvard Journal of Asiatic Studies* 22: 261–267.