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Introduction | **Approaching Potent Substances in Medicine and Ritual across Asia**

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A few years ago we began thinking about the nature of 'potency' in Asian medicines in preparation for a three-year research project on 'Potent Substances in Sowa Rigpa and Buddhist Ritual,' which enters its second year as this issue of *HIMALAYA* goes to print. In the course of our preparations for the project, we identified two fundamental research questions: 'What makes a substance potent?' and 'How is potency defined, attributed, and enhanced?' Since then, we have been exploring these questions among practitioners of Sowa Rigpa and in medicine-related rituals, mostly in small-scale medicine making settings in Ladakh, Dharamsala, and the Darjeeling areas of the northern Indian (trans-)Himalayas.

As part of our preliminary project activities we invited scholars and practitioners from multidisciplinary backgrounds to join us during a panel on 'Materiality, Efficacy, and the Politics of Potent Substances' that was held at the 9th International Congress of Traditional Asian Medicine (ICTAM) in Kiel, Germany (August 6-12, 2017). Vivienne Lo, Senior Lecturer and Director of the China Centre for Health and Humanity at University College London, was our panel discussant, and we are grateful that she has written the Afterword to this issue. This special issue shares the proceedings of this panel, along with papers from several other invited contributors. It explores links between materiality and potency in a given Asian medical tradition or setting from various perspectives—including textual-historical, ethnographic, and practical sensorial angles. Our overall aim is to lay out the larger debates of potent substances across Asia through seven full-length research articles by anthropologists, pharmacologists, indologists, religious and Tibetan studies scholars, and medical practitioners. We document and analyze potent substances such as aconite, coral, turquoise, and pearl in Sowa Rigpa, iron-based medicines in Ayurveda, consecrated medicines in Buddhist-related Bon traditions, as well as medicinal mercury in Myanmar and herbs used as horse medicine in Japan.

What does Japan have to do with the Himalayas, readers might wonder. This geographical expansion of the Himalayan zone is first of all based on shared ideas and practices relating to the transformative powers of materials (such as plants, minerals, and metals) and objects (such as scrolls). We want to highlight substances and approaches to potency that at some point in time transversed the barriers of the Himalayas, entangling different medical and ritual knowledge systems through trade (including via the Silk Roads, cf. Whitfield 2007; Yoeli-Tlalim 2019) and Buddhist circuits (Sen 2018), feeding into a centuries-old and continuing symbiosis between Buddhism and medicine on a global scale (Salguero 2015). We welcome this broadening in geographical and interdisciplinary scope of *HIMALAYA*, to which we contribute by challenging set ideas of the potency of multi-compound formulas widely used across medicines and rituals in South, Central, and East Asia, while also highlighting aspects of the complex pan-Asian interface with biomedicine.

Defining Potent Substances

We are not the first to explore the large field of potent substances. This issue builds on the work by Vivienne Lo and her colleagues in particular, who have questioned, theorized about, and published on the boundaries of food, spices, and medicines in the making of potency in Europe and China. Lo and her colleagues organized two conferences on potent substances in London in 2010 and 2013: the first on 'The Boundaries of Food and Medicine' and the second on 'Spices and Medicine: From Historical Obsession to Research of the Future.' They published the proceedings in a special issue of the *Journal of Ethnopharmacology* (Lo et al. 2015). Their conference and journal contributors raised important questions: How and when did substances cross cultural and taxonomic boundaries? When did spices become medicines? How were foods and drugs attributed potency and who 'owns' the knowledge of these potent substances that, at times in the past, were considered foods (*materia dietetica*) and at other times medicines (*materia medica*)? How can we define potent substances with such taxonomic, historical, and geographical overlaps? (Lo et al. 2015: 2-3).

Authors of that issue point to the importance of flavor in the making of potency for both culinary and ritual purposes (e.g., Lu and Lo 2015) and show that a large percentage of plants used in Hippocratic medicines had nutritional purposes in antiquity (e.g., Totelin 2015; Touwaide and Appetiti 2015; Wilkins 2015). Together, they emphasize the fluidity of boundaries between food and medicine. In the same issue, Kadetz (2015) problematizes the universality of 'safety.' He observes that "the global commodification of plant-based health care products has been justified as the means by which to prove and improve the intrinsic effectiveness, quality and especially safety of the plants intended for human health, [... but paradoxically] the extrinsic factors of production, marketing and regulation of these plants may raise more significant concerns of safety" (Kadetz 2015: 115). This global agenda often ignores local understandings of potency, which in many places played a crucial role in ensuring the safety of plant medicines before commodification set in.

The perceived potency of substances, especially spices, increased with their rarity, price, and far-away origins, and their trade has impacted capitalism, science, and patterns of consumptions globally. We build on this insight that potent substances are in continuous transition, and thus need to be defined with reference to their particular placement in time and space. This special issue of *HIMALAYA* is unique in that it brings together different angles of potency from medico-ritual and socio-political perspectives across Asia, raising awareness on what makes a substance potent. It also illustrates how potent substances can become politicized and even endangered through reductionist approaches based on different scientific epistemologies, thus challenging the ways in which Asian medical practitioners 'traditionally' explain their workings.

Approaching Substances through Artisanship

The first article in this special issue by Dagmar Wujastyk, an indologist specializing in Sanskrit medical literature, takes us back to Indian medical texts of the ninth century. Her analysis reveals a sudden change at that time in how potent substances from the metal and mineral realms were introduced into the *materia medica*, which required elaborate, multi-stage processing techniques in drug manufacturing. Wujastyk traces the evolution of iron-based medicines (Skt. *lauharasāyana*) through this development of complex processing techniques, raising questions about the ideas of potency in Ayurveda. Similar to Pamela Smith's approach of 'Historians in the Laboratory' (2016), Wujastyk took her project team (see <http://AyurYog.org>) to attend a hands-on workshop in the UK led by Andrew Mason, a practitioner of Ayurvedic vitalization tonics, called *rasāyana.* Some of his photographs of potent substances before and after processing are included in the cover design of this issue. In Dorset, England, the AyurYog team processed iron pieces in plant juices, burnt them and ground them into fine powder in a mortar. The combination of this personal artisanal experience with her analysis of Sanskrit medical texts led Wujastyk to a different understanding of what kinds of efforts and time commitments are involved in working with particular substances. Combining theory and practice, the Ayurvedic concept that a 'raw' substance needs to be purified and 'killed' becomes more accessible for indologists in the absence of the texts giving precise details about the impurities and processes of purification.

Anthropologists, for the most part, have the advantage to observe live practices in the field and do not rely solely on reconstructing them based on texts. Yet, they also face discrepancies between text and practice. This issue also asks how Sowa Rigpa specialists negotiate between text, practice, and their contemporary worlds. In the case study by anthropologist Barbara Gerke on the Sowa Rigpa processing of turquoise (Tib. *g.yu*), coral (*byu ru*), and pearl (*mu tig*), historical medical texts and orally transmitted lineages acquire an important yet at times contested status of authenticating a long-standing tradition, especially in the context of scientific hegemonies that seem to sideline intricate Sowa Rigpa epistemologies. She demonstrates how the potency of precious stones emerges as a complex synergy of interactions between substances and the

socio-historical, religious, economic, and political values attributed to them, all of which are encapsulated in 'the potency of tradition.'

Jan van der Valk's paper on the Sowa Rigpa formula Garuda 5 (Tib. *khyung lnga*) attends to the 'ecologies of potency' in which substances are enmeshed, sketching a broader poison-medicine spectrum by ethnographically focusing on the ingredient 'black aconite' (*bong nga nag po*). The root of this powerful plant is described both as 'the great medicine' (*sman chen*) and as 'virulent poison' (*btsan dug*). Based on close observations of medicine-making and prescription practices by Men-Tsee-Khang-trained Tibetan doctors, anthropologist and ethnobotanist van der Valk argues that potency emerges contingently in local bodies and ecologies, and is modulated through skilful processing, compounding, and prescription. This crafting of potency in practice unsettles the reified opposition between medicine (*sman*) and poison (*dug*), while putting the oft-presumed centrality of dosage as the ultimate criterion in perspective. This article not only continues on the theme of artisanship and potency in Asian medical settings, but resonates with the contributions by Schwabl and van der Valk as well as by Tidwell and Nettles, as these also highlight interfaces between Sowa Rigpa and biomedical pharmacological concepts of activity, toxicity, and purity.

Potency and Synergy at the Interface of Asian Medicine and Biomedical Pharmacology

The contributions by Schwabl and van der Valk, Tidwell and Nettles, and Butler each offer ways to overcome incommensurabilities between Asian medicine and biomedical pharmacology from their own perspectives: systems theory, Sowa Rigpa medicine compounding theory, and medicinal chemistry.

The perspective piece by Herbert Schwabl (a physicist and chairman of the Swiss pharmaceutical company PADMA Inc.) and Jan van der Valk challenges the notion of 'active substance' by foregrounding the plasticity of Tibetan medical formulas in local practice and across time and space. From a systems perspective, the complex yet stable physiological action profile of these variable mixtures defies attempts at biomedical standardization. Botanically and chemically entirely different plant species may exhibit similar signatures of action, especially when combined into multi-target 'network medicines' that mirror the complexity of chronic diseases. This piece invites us to approach potent substances semiotically, and from a functional activity rather than from a strictly material substance-based perspective.

In their research article, Tawni Tidwell and James Nettles equally critique the wholesale application of pharmaceutical research methods to Sowa Rigpa formulae, noting that the drug discovery process barely takes into account how exactly these medicines are compounded and administered to patient bodies, and how their intricate workings are conceived in Tibetan medical terms. They assess parallels between pharmacological and Tibetan medical compounding (Tib. *sman sbyor*) concepts of purity, potency, and activity as a starting point for a more balanced collaboration. Their approach opens up avenues for innovation, as expressed in the 'multi-compound synergy-by-design' paradigm, which could be integrated into biomedical pharmacology and drug design.

Anthony Butler presents us with perhaps the most spectacular example of drug development based on Chinese herbal medicine: the extraction, purification, structural elucidation, and chemical modification of artemisinin, originally found in the herb *Artemisia annua*. By summarizing the main steps of the historical fight against malaria from a chemist's point of view, he shows how scientific innovations gradually optimized and altered drug potency in response to repeated parasite resistance and political-economic reasons. Butler concludes his perspective piece with the statement that there is a global public health need for multi-compound remedies with synergistic effects, which would actually benefit from looking at how potent substances are conceived and used in other traditions.

The Politics of Potency

Céline Coderey's article on the contested gold ash (Burm *shway hsay*), a panacea made with processed mercury in Myanmar, sketches how a traditional Burmese alchemical practice turns into a powerful political tool. Her ethnographic contribution presents a valuable counterpoint to more substance-centered arguments, which are in danger of losing sight of the impact of wider socio-political constellations and the multiple layers of meanings that constitute potency. As such, the power of Burmese alchemy can be attributed at least partly to its continued resilience in spite of—and also due to—attempts at marginalization by the state and biomedical institutions, as a kind of undefeatable 'weapon of the weak' (Scott 1985).

Empowerments of Substances: Medico-Religious Intersections of Potency

The ritual use of substances and the idea that potency can be increased through ritual empowerment is a widespread notion across Asia. There are many examples that tell us that ritual and medicine are not separate domains when

considering the potency of substances (e.g., Craig 2011; Salguero 2018; Sehnalova 2018). Both involve specialized crafts of working with substances. This issue contains two research articles and a photo essay that illustrate such empowerments of substances, thus presenting us with pan-Asian approaches to potency.

Tibetanist Anna Sehnalova focuses on 'accomplished medicines,' documenting a Bonpo *mendrup* (Tib. *sman sgrub*) ritual ethnographically in Nepal that she attended in 2012 while also tracing its textual history. Within the rite, potent substances are arranged spatially onto a mandalic structure, constituting an essential component of the mutually reinforcing layers that generate the overall 'great potency' (*nus pa chen po*) of the performance. Sehnalova sees potency emerging in spatiality, merging a typical tantric mandalic ritual scheme with the known characteristics and potencies of substances, which are also described as medicinal in Sowa Rigpa.

Katja Triplett examines a thirteenth century Japanese scroll painting (Jap. *Ba'i sōshi emaki*, 1267) of substances from a Religious Studies perspective. This scroll might have been used as an object of empowerment, but also as a way to identify certain herbs used in horse medicine. Secret/sacred plant lore is reflected in plant names, but pronouncing the names themselves may also provide direct ritual access to their potency. Read alongside a sixteenth-century text, Triplett suggests that decoctions of these plants that were ritually empowered were indeed used as a panacea for treating horses. Although the scroll is Japanese, the trilingual introduction of the names of protecting deities and veterinarians spans all the way to China and India. The fine ink drawings reproduced in the Art Gallery of this issue present a powerful visual experience to any willing spectator.

The nuanced and innovative contributions introduced above demonstrate that the potential for further research and discovery is vast, both on conceptual levels and in terms of finding 'new'—or more likely reinvented and reformulated—(carefully processed mixtures of) potent substances. However, there is also a real danger of losing access to these sources of health and well-being in today's world of biomedicalization, pharmaceuticalization, governmental regulation, climate change, and biodiversity loss (including rare and endangered Himalayan medicinal plants). This multidisciplinary issue is a modest attempt at understanding and also resisting this reduction and loss of potency by offering alternative ways of engaging with potent substances across Asia. Instead of ignoring the complexities involved, we acknowledge and emphasize the many entanglements between the pharmacological-material worlds of the substances themselves and their socio-cultural, economic, and political aspects in the making of (perceptions of) potency.

Barbara Gerke and **Jan M.A. van der Valk**
Special Issue Co-Editors

Note on Transliteration

We used the modified Hepburn system for the Romanization of Japanese,[1] Pinyin for the Chinese, and for Sanskrit the 'International Alphabet of Sanskrit Transliteration' (IAST) scheme.[2] For the transcription of Burmese we relied on the Okell (1971) system. Tibetan terms are introduced with a phonetic transcription (if used more than once), followed by the transliteration in Wylie (1959) at first use. Thereafter, only the phoneticized term is used. The phonetic transcription follows the Tibetan and Himalayan Library's Simplified Phonetic Transcription of Standard Tibetan by David Germano and Nicolas Tournadre (2003), with the exception of commonly used terms, such as Sowa Rigpa or Rinpoche.

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Endnotes

1. <https://www.hadamitzky.de/english/lp_romanization_sys.htm#07> (accessed on 10 April 2019).

2. <en.wikipedia.org/wiki/International_Alphabet_of_Sanskrit_Transliteration> (accessed on 10 April 2019).

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