



History of Science in South Asia

A journal for the history of all forms of scientific thought and action, ancient and modern, in all regions of South Asia

Special issue:

*Transmutations: Rejuvenation, Longevity, and
Immortality Practices in South and Inner Asia*

Edited by Dagmar Wujastyk, Suzanne Newcombe,
and Christèle Barois

Introduction

Dagmar Wujastyk, Suzanne Newcombe, and Christèle Barois

University of Vienna, Inform (LSE), University of Vienna

MLA style citation form: Dagmar Wujastyk, Suzanne Newcombe, and Christèle Barois. "Introduction." *History of Science in South Asia*, 5.2 (2017): i–xvii. DOI: 10.18732/hssa.v5i2.33.

Online version available at: <http://hssa-journal.org>

HISTORY OF SCIENCE IN SOUTH ASIA

A journal for the history of all forms of scientific thought and action, ancient and modern, in all regions of South Asia, published online at <http://hssa-journal.org>

ISSN 2369-775X

Editorial Board:

- Dominik Wujastyk, University of Alberta, Edmonton, Canada
- Kim Plofker, Union College, Schenectady, United States
- Dhruv Raina, Jawaharlal Nehru University, New Delhi, India
- Sreeramula Rajeswara Sarma, formerly Aligarh Muslim University, Düsseldorf, Germany
- Fabrizio Speziale, Université Sorbonne Nouvelle – CNRS, Paris, France
- Michio Yano, Kyoto Sangyo University, Kyoto, Japan

Publisher:

History of Science in South Asia

Principal Contact:

Dominik Wujastyk, Editor, University of Alberta
Email: wujastyk@ualberta.ca

Mailing Address:

History of Science in South Asia,
Department of History and Classics,
2–81 HM Tory Building,
University of Alberta,
Edmonton, AB, T6G 2H4
Canada

This journal provides immediate open access to its content on the principle that making research freely available to the public supports a greater global exchange of knowledge.

Copyrights of all the articles rest with the respective authors and published under the provisions of [Creative Commons Attribution-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-sa/4.0/).

The electronic versions were generated from sources marked up in \LaTeX in a computer running GNU/LINUX operating system. PDF was typeset using $X_{\text{E}}\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ from $\text{T}_{\text{E}}\text{X Live}$. The base font used for Latin script and oldstyle numerals was $\text{T}_{\text{E}}\text{X Gyre Pagella}$ developed by *gust*, the Polish $\text{T}_{\text{E}}\text{X}$ Users Group.

Introduction

Dagmar Wujastyk, Suzanne Newcombe, and Christèle Barois

University of Vienna, Inform (LSE), University of Vienna

WILD AND DIVERSE OUTCOMES are associated with transmutational practices: the prolongation of life, the recovery of youth, the cure of diseases, invincibility, immortality, enlightenment, liberation from the cycle of rebirths, and unending bliss. This range of outcomes is linked to specific practices taught in separate traditions and lineages in medical, alchemical, yogic and tantric milieus across South and Inner Asia. These practices can be individual or collective, esoteric or secular, and occur in different places from hospital to village to monastery; they involve transmutations of substances as well as transmutations of the body. Every expression by a particular lineage has a distinguishing articulation. Yet there are also very clear commonalities and interconnections between the traditions' aims, methods and expected results. In this special issue of HSSA, we examine transmutational practices and their underlying concepts in the wider context of South and Inner Asian culture. How do these practices and ideas connect and cross-fertilise? And conversely, how are they delineated and distinct?

This collection of articles was created in the framework of AyurYog, a collaborative project that seeks to unpack how the South Asian milieus of yoga, Ayurveda and alchemy have interacted over time. The quest for youthfulness and longevity is a pervasive theme in Indic literatures, and stories of attempts to prolong life or to become young again are found in many different literary genres. This is a huge and largely understudied area of comparative historical research. The AyurYog project was conceived as a way to open research towards exploring the interconnections between what are typically studied as distinct fields of expertise over a *longue durée*. As a way of focusing the scope of the research, the AyurYog project has given special attention to longevity and vitalisation practices called *rasāyana* and *kāyākalpa* as possible key areas of exchange between the disciplines of yoga, alchemy and Ayurveda. For the pre-modern period, the AyurYog project has focused on Sanskrit texts, drawing comparatively on works from medical, alchemical and yogic contexts. For the modern period, the AyurYog project is examining how these concepts and practices have changed as portrayed in government reports, print publications, newspaper art-

icles and in contemporary practices where possible. Some of the initial results of the AyurYog project are to be found in this collection of papers.

The transmutational practices represented in Sanskrit sources dialogue with those of other cultures and languages in South and Inner Asia, sometimes including obvious parallels in terms of terminology, procedures or substances used, and at other times demonstrating conscious distinctions between soteriological and technical frameworks. In order to explore some of these dialogues, AyurYog has facilitated one international academic workshop and an international conference.¹ In both scientific meetings, the group of researchers aimed at bringing together the various specialist approaches of similar practices in distinct times and locations in order to arrive at a deeper understanding of the development and positioning of each particular presentation of transmutational beliefs and practices.

In this volume, we are pleased to be able to draw together for publication a wide scope of research into this area of enquiry. In addition to the examination of these concepts and practices in Sanskrit South Asian traditions, we feature ground-breaking research on the related practices and concepts of *kāyakarṣam*, *chūlen* (Wylie *bcud len*) and *mendrup* (Wylie *sman sgrub*), developed in the Tamil Siddha medico-alchemical tradition and in Tibetan Buddhist and Bonpo contexts, respectively. The issue also offers an exploration of Islamic yogic longevity practices that emerged in Sufi milieus of the Roshang kingdom between the fifteenth and eighteenth centuries. Many practices first described in centuries-old texts survive into the present in various forms, as the articles here detail.

The article by Christèle Barois in this volume takes up the question of how the early Sanskrit medical writers and their commentators conceived of ageing and lifespan in a detailed study of the concept of *vayas*, a Sanskrit term for "age," "vigour," "youth" or "any period of life." Noting the complexity of the different medical writer's conceptions of *vayas*, Barois explains how the medical treatises and their commentaries concur in presenting *vayas* as a general process of transformation that is governed by time, and offers an analysis of what role the different concepts of age and ageing played in medical practice. She questions in particular the meaning of *vayaḥsthāpana*, "stabilization of age," a positive effect of medical *rasāyana*, in light of the definition of *vayas* in classical medicine.

Rasāyana practices, that is, practices generally associated with the prolongation of lifespan and rejuvenation, are first comprehensively described in the early

¹ The workshop "Rejuvenation, Longevity, Immortality: Perspectives on *rasāyana*, *kāyakaḥ* and *bcud len* practices" was held in 2016 and the conference entitled "Medicine and Yoga in South and Inner Asia: Body

Cultivation, Therapeutic Intervention and the Sowa Rigpa Industry" was held in 2017. A selection of the papers given at these events are available at the AyurYog YouTube channel (Wujastyk et al. 2018).

Sanskrit medical texts, where they are defined as one of eight normative subject areas of Ayurveda.² The term "*rasāyana*" itself is difficult to translate, as the two elements of the compound, i.e., "*rasa*" and "*ayana*" or "*āyana*" each have a range of possible meanings. Both Dagmar Wujastyk and Philipp Maas discuss different interpretations of the term in this volume. In Sanskrit medical literature, *rasāyana* describes a type of substance or medicine as well as the regimen and treatment associated with its intake. In most cases, *rasāyana* procedures are depicted in terms of a medical therapy supervised by a physician and administered to a patient, particularly in the context of the more complex treatments. However, the early medical treatises also allude to *rasāyana* as a practice, pro-actively undertaken by individuals wishing for certain results.³ As shown by Wujastyk, the results of *rasāyana* treatments described in the medical treatises range from anti-ageing effects to the prolongation of life; from the cure of specific diseases to the attainment of perfect health; from the improvement of mental and physical powers to the development of extraordinary powers.

The term "*rasāyana*" is also prominent in Sanskrit alchemical literature, where it is used to describe the characteristics of raw substances and compound formulations, but more often denotes the culmination of alchemical practice. The latter consists of a series of preparatory applications of various cleansing formulations, followed by the intake of mercurial elixirs for transmutation. Here, *rasāyana* describes a regimen in which activities are actively undertaken by practitioners who self-administer elixirs made by themselves in complicated and laborious procedures. As discussed in Wujastyk's article, the alchemical *rasāyana* shares a number of features with the medical *rasāyana* in terms of applied substances, procedures and aims. However, there are also significant divergences. Important concurrences include the methodology of *rasāyana* treatment/practice, which in both

² The earliest Sanskrit medical texts, the *Carakasamhitā* and the *Suśrutasaṃhitā*, date to the early centuries CE, though some of their contents may be several centuries older, while their final redactions date to roughly the middle of the first millennium CE. Citations in this introduction are to the editions of Ācārya (1981, 1992).

³ See, for example, *Carakasamhitā*, *cikitsāsthāna* 1.1.16-28 for a description of "in-the-hut"-treatment in which a physician is called to administer (Sanskrit: *upācaret*, "he should administer") medicines. By contrast, see *Carakasamhitā*, *cikitsāsthāna* 1.2. 32-35, which declares that "one who desires the

effects of *rasāyana*" should employ (Sanskrit: *prayojayet*) formulations based on long pepper. Similarly, *Suśrutasaṃhitā*, *cikitsāsthāna* 27.3 states that a wise physician (Sanskrit: *bhīṣak*) should apply *rasāyana* during the young or middle-aged period of a man, while *Suśrutasaṃhitā*, *cikitsāsthāna* 29 outlines how a particular *rasāyana* procedure involving the intake of soma is actively undertaken by the person consuming the potion without the involvement of a physician. Most commonly, neutral expressions are used, describing how a drug works, rather than describing its application through a physician or its intake by a practitioner.

literatures is described as entailing the preliminary internal cleansing of the patient's/practitioner's body with predominantly herbal preparations to create optimal conditions for the application of the *rasāyana* tonic or elixir proper. There is also a significant overlap in both literatures in terms of the stated effects of *rasāyana*, such as the cure of specific diseases, the improvement of cognitive abilities and the enhancement of physical power and virility. However, the alchemical texts describe further effects, notably the attainment of immortality, a god-like condition or godhead itself that are absent in medical literature.

An important divergence between medical and alchemical literature lies in the substances used for *rasāyana* and the ways in which these substances are employed. In alchemical literature, mercury is the most prominent substance and the central ingredient in the *rasāyana* process. Its application during the final *rasāyana* activities is preceded by complex metallurgical procedures. From the seventh-century, mercury is included among *rasāyana* ingredients in the Sanskrit medical treatises, but is never presented as the most important substance. From about the ninth century, Sanskrit medical works increasingly included metals and minerals into their pharmacopoeia and their *rasāyana* formulations. Simultaneously, these later medical texts integrated methods for processing these materials that show close parallels to the metallurgical procedures of the alchemical works. However, the metallurgical procedures described in the medical works are usually much simpler than those described in the alchemical works and are not exclusively associated with *rasāyana* practice: They also occur in other medical contexts in which metals and minerals are used in medicinal compounds. The *rasāyana* of early medical literature (up to, and including the seventh-century works attributed to Vāgbhaṭa) is furthermore embedded in a broadly brahmanic worldview with references to Vedic sages and gods as well as to religious observance and the fulfilment of the brahmanic three goals of life (Sanskrit: *trivarga*), i.e., righteousness, wealth, and pleasure.⁴

Here, *rasāyana* is an indirect means to these ends, in that the health and longevity attained through *rasāyana* enables a person to pursue these goals. The alchemical *rasāyana*, by contrast, is typically set within a Śaiva context, with the origins of *rasāyana* being attributed to "perfected beings" (Sanskrit: *siddha*) instead of Vedic sages, and liberation from the cycle of rebirths envisioned as possible within a living body (Sanskrit: *jīvanmukti*).

⁴ See, for example, the talk by Maas (2017) where he discusses the narrative role of the Vedic sages in the *rasāyana* chapter of the *Carakasamhitā*. In regard to the brahmanic goals in life, it should be noted that they are not featured in the *Suśrutasamhitā*'s exposi-

tion of *rasāyana*. The *Carakasamhitā* mentions the fourth brahmanic goal of life, i.e. liberation (*mokṣa*), in other contexts, but not in its *rasāyana* chapter. See also Roṣu (1978) on the *trivarga* in ayurvedic literature.

Thus, in the alchemical texts, the practice of *rasāyana* endows practitioners with the long life needed to pursue their spiritual practice, but at the same time is also the means itself to achieve spiritual aims.⁵

While *rasāyana* is prominently featured in Sanskrit medical and alchemical works, it seems it played only a minor role in Sanskrit works on yoga. Philipp Maas' article "On the Meaning of *Rasāyana* in Classical Yoga and Ayurveda" in this volume explores two passages that refer to *rasāyana* in the *Pātañjalayogaśāstra* (PYŚ; references are to Āgāṣe and Āpaṭe 1904) and several of its commentaries. Both of the examined passages use the term in the sense of elixir or magic potion. In the first (PYŚ 4.1), a *rasāyana* preparation is explained as an alternative means for acquiring extraordinary capacities (*siddhi*); in the second (PYŚ 3.51), the *rasāyana* potion is associated with preventing old age and death and thus enabling the user to prolong the enjoyment of worldly, and especially sexual pleasures. The effects of *rasāyana* described in these short, and somewhat obscure passages correlate to some degree with descriptions of the effects of *rasāyana* in the oldest Sanskrit medical works. However, in the PYŚ, the intake of *rasāyana* potions is associated with divine or supernatural domains and the intervention of their inhabitants, and thus the circumstances for the use of *rasāyana* potions are different from those described in medical literature. Maas notes differences in the interpretations of the PYŚ's commentators: One reinforces the idea of *rasāyana* as magical elixirs unavailable to humans under normal conditions; another associates *rasāyana* with the use of mercury, thus connecting the PYŚ's *rasāyana* with the mercurial elixirs of alchemical traditions. A further commentary relates *rasāyana* to the intake of soma and Indian gooseberry (Sanskrit: *āmalaka*) and thus establishes a connection with the early Sanskrit medical works, the *Suśrutaśāṃhitā* and the *Carakasāṃhitā*, which describe soma and Indian gooseberry as key *rasāyana* substances, respectively.

Unfortunately, the present volume does not contain a discussion of *rasāyana* in medieval yoga and Śaiva literature. Here, *rasāyana* can take very different forms to what is described in the medical texts. To give one example of an interpretation of *rasāyana* in a Śaiva text from before the tenth century, the *Netratantra* uses the term *rasāyana* as a synonym of *amṛta* (ambrosia) in its description of meditation

5 For example, the *Rasahrdayatantra* (Kāle and Ācārya 1911), a tenth-century Sanskrit alchemical treatise, describes in its first chapter (in verses 27–33) how the application of an elixir based on mercury and sulphur will prolong life and enable the yogi to attain liberation by providing extra time

for its pursuit. And in its nineteenth and final chapter, the same work describes a *rasāyana* process with a series of elixirs through which the practitioner can attain liberation. See Wujastyk (2017) in this volume for a detailed description of chapter nineteen of the *Rasahrdayatantra*.

on a form of Śiva named Mr̥tyujit or Mr̥tyuñjaya ("he who overcomes death"), or Amṛteśa ("immortal lord").⁶ According to the *Netratantra*:

The yogin strengthens his body, or that of another, through the increase of the supreme ambrosia from subtle meditation; he becomes provided with a divine body devoid of any disease.⁷

Here, meditation takes the place of intervention with medicinal compounds. Other methods for attaining longevity and freedom from disease that are prominent in *haṭhayoga* literature include other yogic techniques, such as visualisation, breathing exercises, postures, etc. Jason Birch's research shows that reference to *rasāyana* practices (albeit not under the name of *rasāyana*) is rare in *haṭhayoga* texts. Birch has found three instances in *haṭha*- and *rājayoga* literature: the first occurs in the fourteenth-century *Khecarīvidyā*, and is then discussed in its commentary, the post-fifteenth-century *Bṛhatkhecarīprakāśa*, while further textual parallels and identical recipes are found in the eighteenth-century *Yuktabhavadēva* by Bhavadēva. The *Khecarīvidyā*'s fourth chapter, titled "Herbs for Special Powers" (Sanskrit: *siddhyauśadhāni*) lists recipes for rejuvenation, longevity and immortality. Mallinson (2007: 13) suggests that this chapter was a later addition to the text and notes that a parallel chapter is found in *Matsyendrasaṃhitā* ch. 28.⁸ Birch points to similarities between the *Khecarīvidyā*'s recipes and *rasāyana* formulations of the early Sanskrit medical works and suggests that some of its formulations may have been taken or adapted from the medical works, while others have parallels with recipes found in alchemical literature. However, he also notes that he has not found textual parallels between the *Khecarīvidyā*'s fourth chapter and any Sanskrit medical work that can be dated to before the seventeenth century. This research was presented by Jason Birch in his talk "Immortality and Herbs in Medieval Yoga Traditions" at the AyurYog workshop in October 2016 on 'Rejuvenation, longevity, immortality. Perspectives on *rasāyana*, *kāyakalpa* and *bcud len* practices' held at the University of Vienna. Birch also briefly discusses *rasāyana* in the wider context of medical elements in medieval yoga traditions in his article "Premodern Yoga Traditions and Ayurveda. Preliminary Remarks on their Shared Terminology, Theory and Praxis".⁹

On the other hand, it is clear that the authors of *haṭhayoga* literature knew of alchemical procedures. For example, in the *Haṭhapradīpikā* (fifteenth century), an extended metaphor of the mind (*manas*) as mercury unequivocally shows the author's familiarity with mercurial practices:

6 See *Netratantra* 7.12. Brunner (1974: 143) translates *rasāyana* as "elixir for long life."

7 *Netratantra* 7.4cd–5: सुक्ष्मध्यानामृतेनैव परेणैवोदितेन तु। आप्यायं कुरुते योगी आत्मनो वा परस्य च। दिव्यदेहः स भवति सर्वव्याधिविर्जितः।

8 Chapter 29 of the *Matsyendrasaṃhitā* also seems to be about *rasāyana*. See Mallinson 2007: 170, n. 27.

9 Birch 2018.

In the same way as mercury, the mind becomes fixed, devoid of unsteadiness due to the assimilation of the sound which is comparable to sulphur, and succeeds in wandering in the space named 'supportless'.¹⁰

However, longevity practices in the yoga traditions and their connection to alchemical *rasāyana* remain a poorly studied field, partly due to the large number of texts still unedited.

Sanskrit medical works up to at least the eighteenth century continued to include *rasāyana* therapy in their presentations of ayurvedic medicine. However, the more complicated procedures described in the texts seem to have become rare in actual medical practice. Reports of *rasāyana* treatments (under the alternative name of *kāyakaḷpa*) from the first half of the twentieth century describe the application of methods such as the "in the hut" (*kuṭīpraveśika*) method of *rasāyana* therapy as somewhat experimental.¹¹ And in one case, treatment depended on the expertise of a yogi rather than on that of ayurvedic physicians. In this volume, Suzanne Newcombe discusses the incident of the rejuvenation of the prominent Indian nationalist Madan Mohan Malaviya (1861–1946) who underwent a heavily-publicised, intensive *kāyakaḷpa* treatment in 1938 under the supervision of a wandering ascetic, a sadhu called Tapasviji Baba. Malaviya's *kāyakaḷpa* treatment was based on the *rasāyana* regimen described in the Sanskrit medical works and involved using a *rasāyana* formula from the *Aṣṭāṅgahr̥daya-saṃhitā* (a seventh-century Sanskrit medical work). However, treatment was directed by the yogi Tapasviji Baba, who was known to be an expert on the subject. The episode raises interesting questions on the extent to which sadhus and vaidyas exchanged information on medical treatments and techniques. Suzanne Newcombe argues that this marked an important point in the shared history of yoga and Ayurveda, as the two disciplines were subsequently linked together as methods for the promotion of rejuvenation and longevity. Tapasviji Baba himself claimed to have reached the age of approximately 250 years at the time of his death in 1955 by undergoing multiple *kāyakaḷpa* treatments. Newcombe's article shows that Malaviya's health cure may have marked a turning point for popular perception of ayurvedic prescriptions as rejuvenative, and also set the ground for

10 *Hāthapradīpikā* 4.96: बद्धं विमुक्तचा-
ञ्चल्यं नादगन्धकजारणात्। मनःपारदमाप्नोति
निरालम्बाख्यखेऽटनम्।

11 This method of treatment involves utilizing a purpose-built hut that shields the patient from drafts and sunlight and is

first described in the *Carakasamhitā*'s *rasāyana* chapter, and also in the *Suśrutasaṃhitā*'s *rasāyana* chapter, though not under the name of *kuṭīpraveśika*. See Newcombe (2017) in this volume; Roṣu 1975 and Wujastyk 2015.

the promotion of *pañcakarma* ("five (cleansing) procedures") as the most prominent aspect of ayurvedic therapy.

The term "*kāyakaḷpa*" is not used in any of the Sanskrit medical works. It is also not found in any of the medieval Sanskrit works on yoga, and it seems to only rarely occur in Sanskrit alchemical works.¹² However, it is common in its Tamilized form of "*kāyakaḷpam*" in Tamil Siddha medico-alchemical literature. As Ilona Kędzia explores in this volume, *kāyakaḷpam* combines elements of yoga with medicine and alchemy and may thus constitute the link between the three disciplines missing in Sanskrit literature. The *kāyakaḷpam* of Tamil Siddha literature has some overlap with medical *rasāyana*, but more closely resembles aspects of the *rasāyana* of Sanskrit alchemical literature, with strong parallels in the use of substances, methods and applications. Both Sanskrit alchemical works and the Tamil Siddha writings ascribe a dual function to plant materials as ingredients in tonics and elixirs on the one hand, but also as substances used as catalysts in metallurgical procedures on the other. Mercury plays a central role in the Tamil Siddha practices as it does in alchemical *rasāyana*, but the Tamil sources also emphasise the use of various salts and soils, whose chemical composition is a matter of some uncertainty, but that seem specific to the Tamil tradition.

As Kędzia shows, the Tamil Siddha *kāyakaḷpam* practices also exhibit further unique features, such as the integration of yogic techniques and aims. Yogic practices, which hardly find mention in the Sanskrit medical works' presentations of *rasāyana*, are present or at least alluded to in depictions of *rasāyana* in Sanskrit alchemical literature, but play a more central and integrated role in the Tamil texts.¹³ A further, and substantial difference between the Tamil and Sanskrit texts lies in how they present their contents: the Tamil Siddha texts conceive of *kāyakaḷpam* as esoteric, secret practices and use a special coded language to describe them. Kędzia suggests that the use of cryptic symbolic expressions and ambiguous technical terms in the Tamil Siddha texts may serve several functions:

¹² In a personal communication (email, December 15, 2017), Jason Birch (Haṭha Yoga Project) confirmed that he had not come across the term *kāyakaḷpa*, or even related terms such as *deha-*, *śarīra-*, etc., *kaḷpa* in any yoga text, with the one exception being an unnamed nineteenth-century compilation on yoga. A search for "*kāya*" in the Digital Corpus of Sanskrit (DCS, Hellwig 1999–) brings up one single hit for "*kāyakaḷpa*" in the listed alchemical works: *Rasaratnākara* 1.4.48. There may be further occurrences of the term in alchemical works

or parts of works not contained in the DCS.

¹³ This statement depends on what one includes as "yogic practice." *Suśrutasaṃhitā*, *cikitsāsthāna* 29.12, which describes the intake of soma, notes that the person undertaking *rasāyana* should observe silence and practice "*yama*" and "*niyama*." The latter could be understood generally as referring to good behaviour, but could also refer to the concepts of *yama* and *niyama* as two elements of the eightfold path of yoga as expounded in the second chapter of the *Pātañjalayogaśāstra*.

to protect the great truths of the Siddha doctrine from profanation by uninitiated persons; to allow persons outside the literary elite to access Siddha teachings; and/or to convey mystical experiences that cannot be expressed in ordinary language.

Three articles in this issue address transmutational practices and concepts specific to Tibetan cultural milieus. Anna Sehnalova's article furthers our understanding by describing continuity and changes in the Bonpo *mendrup* ritual. The Tibetan religious tradition of Bon can be understood both as a tradition within Tibetan Buddhism and, in other circumstances, as a contrast to Buddhism as it incorporates many indigenous and pre-Buddhist beliefs and practices (Buddhism arrived in Tibet around the seventh century). As Sehnalova describes, contemporary Bonpos, i.e. monks of Bonpo monasteries and their lay communities, adopt many Buddhist precepts while maintaining non-Buddhist ideas. She suggests that extant *mendrup* rituals epitomise the Bonpo monastic milieu informed by Buddhist and other Indian tantric models. The appellation "*mendrup*" is a compound of two words: 1. *men* (Wylie *sman*), denoting "medicine," a healing substance or in general something beneficial, and 2. *drup* (Wylie *sgrub*) meaning "to achieve, attain, accomplish," and thus can translate as "medicinal accomplishment." The Bonpo *mendrup* bears many similarities to the Nyingma *mendrup* monastic practice described in this volume by Cathy Cantwell, and both traditions are also likely to have originated in the same time period (see below). Within its immense complexity, the Bonpo *mendrup* ritual combines Indian tantrism, Buddhism and its soteriological ideas, the Tibetan medical tradition of Sowa Rigpa (*gso ba rig pa*), alchemy and Tibetan indigenous religious notions. The ritual is centred on an inner-personal transformation through meditation upon tantric deities and self-identification with them, accompanied by the production and consumption of specially empowered substances which are compounded according to the principles of Tibetan medical traditions. Sehnalova explains that in Tibetan contexts, the performance of the *mendrup* ritual can vary from being a small yearly rite for the enhancement of drug efficacy in medical institutions (as discussed in Barbara Gerke's article in this volume), an irregular village event, or an extended monastic celebration.

A full monastic ritual, described by Sehnalova in the Bonpo context and Cathy Cantwell in the Nyingma context, is one of the most elaborate, demanding and expensive rituals of the contemporary Tibetan milieu. In her article in this volume, Sehnalova dates the establishment of the monastic *mendrup* ritual in the Bonpo milieu to the eleventh and twelfth centuries with the discovery of two "treasure texts" detailing the ritual which can be dated to this period. These texts mention the Sanskrit word *rasāyana* (Tibetan *ra sa ya na*), possibly referring to the use of the substance mercury. However, the essential core of the medicine created in the ritual is attributed to a "fermenting agent" known as

phabta (*phabs gta'*). Through mentions of *mendrup* in extant, known Bonpo texts, Sehnalova extrapolates that this ritual has been performed periodically since this period and that contemporary enactments in the Tibetan exile community still clearly follow these eleventh- to twelfth-century descriptions, although different practices are evident in the textual record.

Cathy Cantwell's article describes a similar ritual context of *bcud len* performance in the Tibetan Nyingma monastic tradition. Cantwell explains how "taking the essence juice," her translation of *bcud len*, can imply incorporating essences into oneself, but may also refer to the practice of taking or extracting essences from a substance. Nyingma sources also feature the term "*rasāyana*" in Tibetan transliteration (*ra sa ya na*) in the context of Medicinal Accomplishment (*sman sgrub* = *mendrup*) practices. Cantwell shows how the Nyingma practice of *bcud len* is part of a wider set of tantric techniques, and is depicted as a supporting practice for meditation and other yogic practices aiming at enlightenment, i.e., the realization of Buddhahood. Cantwell emphasizes that these *bcud len* practices are subsidiary rather than self-sufficient components of a wider meditation system, often serving as an optional extra to the main meditational practice. The sacred pills, whose spiritual rather than medicinal qualities are emphasized, are distributed at the end of the session to the entire congregation, as occurs in the Bonpo communities.

Barbara Gerke's article in this volume surveys the uses and effects ascribed to Tibetan precious pills (*rinchen rilbu*) and queries which features qualify formulations as "precious".¹⁴ Sowa Rigpa sources attribute precious pills with a wide range of efficacies very similar to those ascribed to *rasāyana* tonics in the Sanskrit medical works, including special powers, prevention of poisoning, rejuvenation, prolonging life and promoting strength and vigour. The focus of Gerke's study is on the rejuvenating qualities attributed to precious pills, and she explores how they are currently advertised, how *chülen* (Wylie *bcud len*), frequently translated as "rejuvenation," is and has been explained in Tibetan works on precious pills, and how Tibetan physicians understand these attributes now. Gerke differentiates between the use of the term *chülen* in the pharmacological context of making medicines; and the use of the term to describe the application of the prepared medicines. In the pharmacological context, she understands contemporary medicinal-focused *chülen* as "essence extraction," a process in which the essence (*chüi*) is extracted from substances such as stones, flowers, metals, or minerals through soaking, cooking, and other practices. *Chülen* in the context of the application of the prepared medicine, somewhat inadequately represented

¹⁴ Gerke uses THL Simplified Phonetic Transcription to represent Tibetan script,

for example writing *chülen* rather than the Wylie *bcud len*.

in its translation as “rejuvenation,” conveys the imbibing of the extracted vital essences to support spiritual and physical health.

Gerke also describes how notions of preventative and rejuvenating benefits have been adopted widely in precious pill presentations in notices, leaflets, and on websites, particularly those addressed to a foreign clientele. Historically, precious pills were more closely associated with the treatment of serious diseases, while only those precious pills containing a mercury-sulfide compound called “*tsotel*” (Wylie *btso thal*) were considered to have rejuvenating properties. Indeed, Gerke notes how the subject of *chülen* is only very briefly alluded to in the context of precious pills in the *Four Treatises*, which provides a more detailed discussion of *chülen* in sections on “maintaining health” and “treating the aged.”¹⁵ The latter sections show clear links with the *rasāyana* chapter of the seventh-century Sanskrit medical classic *Aṣṭāṅgahṛdayasaṃhitā* and contain no mention of precious pills at all. Gerke argues that the more widespread presentation of precious pills as having rejuvenating properties is a relatively recent development that is part of their increased production and pharmaceutical commodification, but is also anchored in the *Four Treatises*, where *chülen* benefits are attributed to precious medicines.

A significant difference between the *rasāyana/kāyakarṇam* of the Sanskrit and Tamil Siddha sources and the Tibetan practices of *mendrup*, *chülen* and *ra sa ya na* may lie in the idea of the practice being of significance for the community and beyond. In the Tibetan context, the ritual is considered efficacious beyond any benefit for a single individual. Cantwell explains how the notion of *rasāyana* in particular is linked to a fundamental feature of Buddhist tantra, namely the concept of the tantric bond (Tibetan *dam tshig*, Sanskrit *samaya*) linking the practitioner with the guru, the deity and the community of practitioners. Here, imbibing the sacred substances is understood as a way of connecting the practitioners with the sacred tantric metaphysical understanding.

There is nevertheless some overlap in the method of practice between the Tibetan and Sanskrit traditions. Cantwell describes that for the monastic ritual performers, the *bcud len* preparation begins by the monks performing an internal cleansing of the physical body. Similar preliminary procedures are also conducted in the context of *mendrup* practices. Furthermore, some substances used in *bcud len*, such as shilajit and mercury-sulfide compounds, overlap with the materials used in *rasāyana* recipes in Sanskrit traditions. However, other ingredients, such as juniper and the rhododendron flower, are not found in either the Sanskrit medical or alchemical *rasāyana* texts. The monastic ritual enactments of *bcud len* and *mendrup* contrast with the use of *bcud len* in the medical tradition of Sowa Rigpa. Visualised tantric consecrations during the practice and the

¹⁵ Gerke (2013) analyses these chapters.

aim of enlightenment, is central to *bcud len* ritual performance. In contrast, the primary aim of *bcud len* in the context of contemporary Sowa Rigpa milieus is the physical well-being of the physician's patients, rather than any spiritual benefits, even though the physical and spiritual aspects may be seen as complementary. In this, the *bcud len* of Sowa Rigpa is more similar to the *rasāyana* of Sanskrit medical literature, while both alchemical *rasāyana* and Tamil Siddha *kāyakarṇam* also emphasize spiritual aims.

Longevity and vitalization practices were also developed within Islamic contexts in South and Inner Asia. To date, there is not much research available on the topic. A recent article by Tzvi Langermann entitled "The Chapter on *Rasāyana* (Medications for Rejuvenation) in *Mi'raj al-du'ā'*, a Shi'ite Text from the 12th/18th Century" explores a fairly late example of longevity practices in Shi'ite Literature. The author of the examined Shi'ite work, Muḥammad 'Alī al-Qazwīnī, uses the Sanskrit name of "*rasāyana*" in Arabic transliteration for the longevity recipes he describes. According to Langermann, Al-Qazwīnī probably took his definition of *rasāyana* as "the chemistry of the body" (*kīmīyā' al-badan*) from Muḥammad b. Yūsuf al-Harawī's (d. 949/1542) *Baḥr al-jawāhir*, which offers the following definition: "*rasāyana*: an Indian word whose meaning is 'chemistry of the body.' Books on *rasāyana* are books about electuaries and compounds".¹⁶

Langermann traces the provenance of the use of the term *rasāyana* in Arabic literature even further back, noting that the term is mentioned briefly by at least two other earlier Arabic writers, namely by the early ninth-century physician 'Alī b. Sahl Rabbān al-Ṭabarī, who defines *rasāyana* as "that which rejuvenates, that which renews" (*al-mushabbib al-mujaddid*) and gives several *rasāyana* recipes in his *Firdaws al-Ḥikma*; and by the tenth-century scholar Abū Rayḥān al-Bīrūnī, who refers to *rasāyana* in his book on India and in his translation and reworking of Pātañjali's work on yoga. Langermann also mentions that the famous ninth-century polymath Abu Bakr al-Rāzī, a pupil of al-Ṭabarī, described a rejuvenating drug under the same term used by al-Ṭabarī, i.e., *al-mushabbib*. This recipe was traced back by Oliver Kahl to Ravigupta's *Siddhasāra*, a seventh-century Sanskrit medical work with a short chapter on *rasāyana*.¹⁷

The connections of *rasāyana* in the literature written by Islamic scholars to the *rasāyana* of Sanskrit medical literature are fairly evident, if not always traceable to specific Sanskrit medical works. There is also a connection with Sanskrit alchemical literature. As Langermann (2018: 147) points out, al-Bīrūnī takes *rasāyana* to be synonymous with alchemy. However, Al-Bīrūnī's initial account of *rasāyana* seems to rather describe the *rasāyana* of the Sanskrit medical classics than that of the alchemical works:

¹⁶ Langermann 2018: 148.

¹⁷ Kahl 2015: 150–1.

It means an art which is restricted to certain operations, drugs, and compound medicines, most of which are taken from plants. Its principles restore the health of those who were ill beyond hope, and give back youth to fading old age, so that people become again what they were in the age near puberty; white hair becomes black again, the keenness of the senses is restored as well as the capacity for juvenile agility, and even for cohabitation, and the life of people in this world is even extended to a long period. And why not? Have we not already mentioned on the authority of Patañjali that one of the methods leading to liberation is Rasāyana?¹⁸

However, in the narrative that follows, al-Bīrūnī retells stories of the making of gold as the purpose of *rasāyana*, and concludes with the following advice: "If this precious science of Rasāyana were banished to the utmost limits of the world, where it is unattainable to anybody, it would be the best".¹⁹ The term *rasāyana* is today often used in the sense of alchemy, as Wujastyk notes in this issue. Perhaps this usage goes back directly to the writings of al-Bīrūnī. The understanding of longevity practices in Islamic contexts and their connection to the various articulations of *rasāyana* in Sanskrit literature is an area of research that deserves more attention.

Forthcoming research by Fabrizio Speziale will hopefully throw more light on the integration of *rasāyana* in Persian medical literature. He presented some preliminary research on this topic in his keynote speech at the AyurYog conference "Medicine and Yoga in South and Inner Asia" in 2017, where he explored concepts, methods and materials associated with *rasāśāstra* and *rasāyana* in Persian literature.²⁰ His presentation showed that descriptions of *rasāyana*, specifically passages dealing with compound mineral drugs and purified metals, became a feature of Persian texts from the fourteenth century; this interest continued into the nineteenth century. Here again, we may note the conflation of medical *rasāyana* with alchemical *rasāyana*. Speziale's work indicates that *rasāyana* in the Persian works mostly refers to alchemy, the term *rasāyana* being used for the whole of alchemy, rather than the subset of *rasāyana* activities as described by Wujastyk in this issue. Speziale noted that there was not a simple way to translate *rasāyana* or *rasāśāstra* into Persian, since earlier Persian medical culture did not have a specific term to refer to iatrochemistry and did not use the Arabic term *kīmiyā* to refer to iatrochemical materials until the eighteenth century.

The theme of longevity practices in South Asian Islamic contexts is taken up by Projit Mukharji who provides some tantalizing insight into the quests towards

18 Sachau 1910:188–89.

20 Speziale 2017.

19 Sachau 1910:193.

immortality and longevity and the connections between Islamic and yogic practices in the Roshang kingdom. The multicultural Roshang kingdom, also known as the Arakan kingdom or Mrauk-U kingdom, straddled the areas we now differentiate as South and South East Asia from 1430 to 1784; its Buddhist kings directly and indirectly patronized generations of Muslim Bengali scholars. Drawing variously from tantric, Sufi, and yogic Nāth traditions, some Muslim Bengali scholars in this milieu described longevity practices within an Islamic tantric soteriology.

Mukharji compares the discussion of life and longevity practices in three Bengali Islamic texts produced in the kingdom of Roshang in the period between the late sixteenth century and the early eighteenth century: an anonymous work called *Yoga Kalandar*, a text entitled *Nurjāmāl bā Suratnāmā* by Haji Muhammad and finally, the *Sirnāmā* by Kaji Sheikh Monsur. These texts describe sets of longevity practices that involve visualisations of spiritual stations (*mokam*) in the body. As Mukharji explains, the concept of *mokams* is roughly analogous to the *cakra* system first described in Sanskrit tantric texts and developed in *haṭhayoga* literature, but each *mokam* is associated with the direct guardianship of a specific archangel and is thus brought into an Islamic context. Practices involving meditation and visualization focused on specific *mokams* were believed to promote both longevity and spiritual attainment.

As Mukharji shows, each of the works uses certain strikingly similar metaphors and images to describe life in the context of these practices. Their imagery of flame, fire and breeze conveys a sense of life that is not linked to the passing of time, but with an idea of life as a material state connected to natural elements such as fire and air. Mukharji asserts that, due to its geographical position, Roshang was influenced by Persianate rather than Sinophone culture. However, we may nevertheless point to Daoist discourses in which imagistic and metaphorical language of inner alchemical transformation can include discussions of light, fire, and various reactive vessels such as stoves, furnaces.²¹ The relationships of East Asian transformative beliefs and practices with those of Inner and South Asia is an important area which deserves its own intensive, collaborate research project as this nascent field matures.

A central concept in the inception of the AyurYog project has been that of entanglements. Through comparing these collections of related practices and substances through various times and places we can see continuity of structure in concepts, goals, benefits and methods. But tradition-specific understandings, innovations and adjustments are also clear. It is possible to understand the spectrum of transmutational practices in South and Inner Asia as a shared and moving culture with specific local articulations. This culture of practices relating

²¹ Littlejohn 2017 and Komjathy 2007:142.

to promoting health, longevity, and enlightenment developed across millennia. Contemporary national and linguistic distinctions and disciplines of study do not adequately match the multicultural exchanges in which these cultures of concept and practice have developed, flourished, mutated, declined and have been revived over the centuries. Intra-cultural entanglement is a fundamental in the creation of these transmutation practices. The articles in this volume are a preliminary effort to draw out some of the threads of these rich and fascinating processes.

1. ACKNOWLEDGEMENTS

THE AYURYOG PROJECT (ayuryog.org) was made possible through funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 639363.

We would like to thank Dominik Wujastyk for his production support on this special issue of *History of Science in South Asia*.



REFERENCES

- Ācārya, Yādavaśarman Trivikrama, ed. (1981). *Carakasamhitā, Śrīcakrapāṇidattaviracitayā Āyurvedadīpikāvyaḥkhyayā Samvalitā*. 4th ed. New Delhi: Munshiram Manoharlal.
- ed. (1992). *Suśrutasaṃhitā, śrīḍalhanācāryaviracitayā nibandhasaṃgrahākhyavyākhyaḥ nidānasthānasya śrīgayadāsācāryaviracitayā nyāyacandrikākhyapañjikāvyaḥkhyayā ca samullasitā...Ācāryopāhvena trivikramātmajena yādavaśarmaṇā ... saṃśodhitā*. 5th ed. Vārāṇasī, Delhi: Caukhambhā Oriyaṅṭaliyā.
- Āgāṣe, Ve. Śā. Rā. Rā. Kāśīnātha Śāstrī and Hari Nārāyaṇa Āpaṭe, eds. (1904). *Vācaspatimīśraviracitaṭīkāsaṃvalitavyāśabhāṣyasametāni Pātañjalayogasūtrāṇi Tathā Bhojadevaviracitarājamārtaṇḍābhidhaṃṛttisametāni Pātañjalayogasūtrāṇi. Ānandāśramasamskṛtagranthāvaliḥ 47. Puṇyākhyapattana: Ānandāśramamudraṅālaya*. URL: <https://archive.org/details/patanjaliyoga>.
- Birch, Jason (2018). "Premodern Yoga Traditions and Ayurveda: Preliminary Remarks on Shared Terminology, Theory, and Praxis". In: *History of Science in South Asia* 6. In press.
- Brunner, Hélène (1974). "Un Tantra du Nord: le Netra Tantra". In: *Bulletin de l'Ecole française d'Extrême-Orient* 61, pp. 125–97. DOI: 10.3406/befeo.1974.5195.

- Gerke, Barbara (2013). “‘Treating the Aged’ and ‘Maintaining Health’: Locating bcud len practices in the Four Medical Tantras”. In: *Journal of the International Association of Buddhist Studies* (2012) 35.1/2, pp. 329–362. DOI: 10.2143/JIABS.35.1.3078168.
- Hellwig, Oliver (1999–). *DCS: Digital Corpus of Sanskrit*. URL: <http://kjc-fs-cluster.kjc.uni-heidelberg.de/dcs/index.php>.
- Kahl, Oliver (2015). *The Sanskrit, Syriac, and Persian Sources in the Comprehensive Book of Rhazes*. Leiden: Brill. ISBN: 9789004290259.
- Kāle, Tryambaka and Yādavaśarman Trivikrama Ācārya, eds. (1911). *Rasaḥṛdayatantram Śrīmadgovindabhagavatpādaviracitam, Caturbhujamiśraviracita-Mugdhobodhinīvyākhyāsamullasitam, Kāle Ityupahvagurunāthātmaajtryambakena Tathā Ācāryopāhoena Trivikramātmajena Yādavaśarmanā Saṁśodhitam. Āyurvedīyagranthamālā 1*. Bombay: Nirṇayasāgara Press. URL: <https://archive.org/details/Rashridayatantra1927> (on 11 Feb. 2018). Reprint: Lahore, Motilal Banarsidas, 1927.
- Komjathy, Louis (2007). *Cultivating Perfection: Mysticism and Self-transformation in Early Quanzhen Daoism*. Leiden: Brill. ISBN: 978-9004160385.
- Langermann, Y. Tzvi (2018). “The Chapter on Rasāyana (Medications for Rejuvenation) in Mi^crāj al-du^cā³, a Shi^cite Text from the 12th/18th Century”. In: *Intellectual History of the Islamic World* 6.1-2, pp. 144–183. DOI: 10.1163/2212943x-00601010.
- Littlejohn, Ronnie (2017). *Daoist Philosophy. 5. Fundamental Concepts in the Daodejing*. The Internet Encyclopedia of Philosophy. URL: <http://www.iep.utm.edu/daoism/#H5> (on 11 Feb. 2018).
- Maas, Philipp A. (2017). *On Caraka’s Account of the Origin of Rasāyana*. Paper presented at the conference “Medicine and Yoga in South and Inner Asia”. University of Vienna. URL: <https://youtu.be/Oq40JNcRIuc> (on 11 Feb. 2018).
- Mallinson, James (2007). *The Khecarīvidyā of Ādinātha: A Critical Edition and Annotated Translation of an Early Text of Haṭhayoga*. London and New York: Routledge. ISBN: 0-415-39115-6.
- Newcombe, Suzanne (2017). “Yogis, Ayurveda and Kayakalpa – The Rejuvenation of Pandit Malaviya”. In: *History of Science in South Asia* 5.2. In press.
- Roşu, Arion (1975). “Considérations Sur Une Technique Du Rasāyana Āyurvédique”. In: *Indo-Iranian Journal* 17.1, pp. 1–29. ISSN: 1572-8536. DOI: 10.1163/000000075790079222.
- (1978). “Études āyurvédiques: le trivarga dans l’āyurveda”. In: *Indologica Taurinensia* 6, pp. 25–60.
- Sachau, Edward C. (1910). *Alberuni’s India: An Account of the Religion, Philosophy, Literature, Geography, Chronology, Astronomy, Customs, Laws and Astrology of India about AD 1030*. 2 vols. London: Kegan Paul, Trench, Truebner and Co.

- URL: https://archive.org/details/alberunisindia_201612 (on 11 Feb. 2018).
- Speziale, Fabrizio (2017). "Rasaśāstra, Rasāyana and Persian Medical Culture in South Asia". Paper presented at the conference "Medicine and Yoga in South and Inner Asia". Vienna. URL: <http://ayuryog.org/event/conference-medicine-and-yoga-south-and-inner-asia-body-cultivation-therapeutic-intervention> (on 11 Feb. 2018).
- Wujastyk, Dagmar (2015). "On Perfecting the Body. Rasāyana in Sanskrit Medical Literature". In: *AION: Annali dell'Università degli Studi di Napoli "L'Orientale". Elisir Mercuriale e Immortalità. Cpitoli per una Storia dell'Alchimia nell'Antica Eurasia. A cura di Giacomella Orofino, Amneris Roselli e Antonella Sannino XXXVII*, pp. 55-77. ISSN: 11128-7209. URL: <https://www.libraweb.net/articoli.php?chiave=201509901&rivista=99> (on 16 Aug. 2017).
- (2017). "Acts of Improvement: On the Use of Tonics and Elixirs in Sanskrit Medical and Alchemical Literature". In: *History of Science in South Asia* 5.2, pp. 1-36. URL: <http://hssa-journal.org>. In press.
- Wujastyk, Dagmar et al., eds. (2018). *AyurYog YouTube Channel*. URL: https://www.youtube.com/channel/UC4ssviEb_KoAtb2U_XaXf_w (on 11 Feb. 2018).

Please write to wujastyk@ualberta.ca to file bugs/problem reports, feature requests and to get involved.

The History of Science in South Asia • Department of History and Classics, 2-81 HM Tory Building, University of Alberta, Edmonton, AB, T6G 2H4, Canada.