

On the History of Medicinal Plant Research in Mongolia

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Long ago, when myth, legend and heroic deeds melded into a *Secret History of the Mongols* (SH), the mother of the future Chinggis Qan raised her sons through times of hardship and with much wisdom. Abandoned by the rest of the camp, she foraged for spring plants to feed them: crab or wild apples [ölirsün], bird-cherries [moyilsun], the roots of the great burnet [südüin] and silverweed [čičigina], wild garlic [qaliyarsun], wild onion [manggirsun], wild lily [ja'uqasu] bulbs, and wild leek [qoqosun] (SH, ¶74-75).¹ Gathered or dug up along the banks of the river Onon, these were not cultivated plants, but the edibles of the wild. In other words, these plants were indigenous, found growing in their natural state, on «living land».

This concept of «living land» was important. Known as *körüüsü(n)* in Classical Mongolian (Oirat *körsün*, *körsön* ~ Khalkha *xörs*), it meant 'topsoil'; but, when called *ɣajar-un körüsin* or literally 'earth's skin', the older sense of the term was apparent. Hence, it was important not to have this skin or topsoil created «dead land» or «land that has been farmed or upon which buildings have been built and which, therefore, has 'lost its skin'.» It was believed that living on such land caused the onset of diseases, such as *bam*, a kind of edema, especially of the legs, and thought to occur primarily among lamas in monasteries. Usually *bam* is defined in medical terms as scurvy, a dietary deficiency in vitamin C. It was not uncommon to see the resulting sores on the legs and feet (*köl-ün bam*). The cure was to take the patient away from this «dead land» to new, green spring pastures and give fresh milk and *kumiss* from the herds.² It may very well have been known by Chinggis' mother that springtime meant a need for fresh greens. Regardless of any practical folk medical wisdom or

¹ For an extended commentary and identification of these plants see *The Secret History of the Mongols: A Mongolian Epic Chronicle of the Thirteenth Century*, translated with a historical and philological commentary by Igor de Rachewiltz (Leiden: Brill Academic Publishers, 2003) [forthcoming]. I would like to thank Prof. de Rachewiltz for sharing this information with me prior to its publication. These plants have been briefly studied by Hasbagan and Imzab, «Ethnobotanical Studies on Edible Plants in 'The Secret History of the Mongols'», *Journal of Arid Land Resources and Environment* (1992), Supplement, pp. 130-138.

² Sechin Jagchid and Paul Hyer, *Mongolia's Culture and Society* (Boulder: Westview Press, 1979), p. 100.

not, the association of these plants with Chinggis and his brothers at a time of need made them important. Imbued with such a past, many of these plants took on a medicinal role, co-existing with shamanic practice, and pre-dating strong outside influences and exchanges with the Uighurs, Tibetan lamas, and Arab or Persian contacts, especially in Central Asia, or exploited during Il-Khanid rule that would so characterize the glory years of the Mongol empire.³

A number of plants which were probably part of the Mongol *materia medica* appeared in early texts. We have already seen a brief list in *The Secret History of the Mongols* (1240), but many more plants appeared, for example, in the Yüan dietary compendium known as the *Yin-shan cheng-yao* (1330) or in the Sino-Mongolian glossary, *Hua-i i-yü* (1389). Others, as noted by Laufer, were mentioned far earlier in the trade and tribute history of Inner Asia.⁴ Plant cults existed in the early Mongolian animistic and shamanic traditions. Intricately woven into the fiber of society, such plant cults were an expression not only of the narrow geographical tribal boundaries, but were part and parcel of the broader spiritual context embodied in masters (*ejid*) of the earth and water (*yajar usun*). Such a mythic concept had already been known by the early Türk peoples, living on the Mongolian steppe in the 6th–8th centuries, expressed as *yer sub*. Among the Mongols were major *Tngri* such as Fajar Delekei Tngri Ejed (Earth Tngri Master), Tariyan-i Arbidqayči Tngri who increased the fruits of the field, or Gūjir Künger Tngri who controlled fodder and food for animal and man alike.⁵ Trees served as «the living place for their gods, local deities, shaman and ancestors' souls.»⁶

³ To date the best summary of this is Thomas T. Allsen's chapter on «Medicine» in his *Culture and Conquest in Mongol Eurasia* (Cambridge: Cambridge University Press, 2001), pp. 141-160. Almost immediately Allsen addresses one of the problems faced in dealing with *materia medica*: identification. «Some of their [i.e. the Mongols'] medicines are known by name, *qajir*, for example, but nothing is known of their composition or character.» (p. 141) See also A. K. S. Lambton, «The *Āthār wa ahyā'* of Rashīd al-Dīn Fadl Allāh Hamadīnī and His Contribution as an Agronomist, Arboriculturist and Horticulturist», in *The Mongol Empire and Its Legacy*, edited by Reuven Amitai-Preiss and David O. Morgan (Leiden: Brill, 1999), pp. 126-154, where Lambton notes that the «references to the medicinal use of plants are scattered and haphazard» (p. 133) in the incomplete text which probably dates from the very early 14th century.

⁴ Important work was started by Berthold Laufer in his *Sino-Iranica: Chinese Contributions to the History of Civilization in Ancient Iran With Special Reference to the History of Cultivated Plants* (Chicago, 1919; reprint edition Taipei: Ch'eng Wen Publishing Company, 1978) and continued by Edward H. Schafer, *The Golden Peaches of Samarkand: A Study of T'ang Exotics* (Berkeley: University of California Press, 1963) in his chapter on «Drugs» pp. 176-194.

⁵ For a general discussion see Walther Heissig, *The Religions of Mongolia* (London: Routledge and Kegan Paul, 1980), pp. 51-52, 56-57.

⁶ Chaolu Wu [Chuluu Üjijediin], «Tree Worship in Early Mongolia», in *Cultural*

The importance of plants, evident in the broader state of Nature (*baiyali*) as regulated by Tngri (sky, heaven) or the Dragon Spirit of the Earth (Oirat: *gazariin luust*), entered customary law and has survived, in varying degrees, to the present. Sometimes the legal restrictions discouraged pollution or what today would be considered environmental degradation, albeit with similar arguments over the need to harvest «protected» materials such as wood used for fuel or plants harvested for medicine. Polluting the source of land (and water) was called, for example, in Oirat: *gazaryn eken buzartsuun*. There were prohibitions on the unnecessary cutting of trees and grasses, on the trampling of grains, or the digging of holes and then abandoning them without filling them in. Legal fines assessed seemed trivial compared to the more dire consequences that could be imposed by the spirit realm for such transgressions. Sickness or death could result.⁷ For example, if a child pulled up grass(es), «it was said one would grow up stunted with crippled limbs» or if holes were dug in the ground and not filled in, such an irresponsible person «risk[ed] sickness and misfortune.»⁸ The same applied to medicinal plants. It is said, even today, of one such plant growing in the mountains near Olon Nuur in Hovd Suum: «A large whitish flower is found on the upper slopes. One should not pick this flower or one will be struck by lightning, showing the anger of Nature. In each place two flowers grow together, one male and one female. The flower has medicinal uses and it is permitted to pick the flowers if one is in real need. In this case the flower should be covered with a white cloth before it is picked; in place of the flower some other plant should be set to grow.»⁹ Considerable work remains to be done on these shrouded mysteries of the botanical spirit world among the Mongolians.

Just at the time of the rise of powerful peoples on the Mongolian steppe, interest in pharmacology was undergoing change during the 13th century in China, where there was a shift from «earlier abstract pharmacology» to «the construction of an applied pharmacology.»¹⁰ In Ulrike Unschuld's discussion of «the intellectual movement of neo-

Contact, History and Ethnicity in Inner Asia, edited by Michael Gervers and Wayne Schlepp, Toronto Studies in Central and Inner Asia 2 (Toronto: Joint Centre for Asia Pacific Studies, 1996), p. 81.

⁷ P. B. Tseren, «Traditional Pastoral Practice of the Oirat Mongols and Their Relationship with the Environment», in *Culture and Environment in Inner Asia: 2. Society and Culture*, edited by Caroline Humphrey and David Sneath (Cambridge: The White Horse Press, 1996), pp. 150, 159.

⁸ Tsui Yenhu, «A Comparative Study of the Attitudes of the Peoples of Pastoral Areas of Inner Asia towards their Environments», in *Cultural and Environment in Inner Asia: 2. Society and Culture*, edited by Caroline Humphrey and David Sneath, (Cambridge: The White Horse Press, 1996), p. 5.

⁹ Tsui, op. cit., p. 7, caption to Figure 1.

¹⁰ Ulrike Unschuld, «Traditional Chinese Pharmacology: An Analysis of Its Development in the Thirteenth Century», *Isis* 68 (1977): 244.

Confucianism and its influence on the style of medical thought in China»¹¹ and its subsequent developments, the success of applied pharmacology, for her, was based on diagnostics by the doctor. The resulting gap between abstract and applied pharmacology, Unschuld felt, «doomed [it] to failure.»¹² At best then, Mongol rule over China came at a time when interest in medicine, and in particular *materia medica*, was in a state of transition. Although this dynamic condition may have allowed the Mongols to absorb Chinese medical and pharmacological ideas, further study is required to determine what the Chinese may have acquired from the Mongols and their far-reaching empire.

Interest in medicinals during the Yüan dynasty (1260-1368) assumed a very traditional Chinese treatment by incorporating Mongol pharmaceutical concerns directly into the bureaucratic system which, thus, was influenced by previous Chinese administrative practices overlaid with Mongol demands.¹³ Most of the pharmaceutical offices were directly concerned with treating imperial court: the Qan, the heir to the throne, the empress dowager, and the imperial guard corps. The poor, however, were not neglected, especially at the two capitals of Ta-tu (modern Beijing) and Shang-tu (Chahar), where Charity Pharmacies were established in 1261 and 1263 respectively. Many offices date from the early years of Qubilai's reign (1260-1294). Not only were these administrative offices charged with the preparation of drugs, but they were also concerned with the supply, packing and storing of medicines, including the stocking of medicine chests for use whenever the court traveled. Those medicaments made for the poor were done so through an 'investment-taxation-interest scheme' from funds supplied by the government. The Imperial Pharmaceutical Bureau, established in 1269, «received pharmaceuticals presented to the court from the various districts of the empire and from foreign lands, and compounded drugs from them.»¹⁴ Drugs were experimented with. Certainly some of the offices and medicines were influenced by the previous Chinese bureaucratic establishment and pharmaceutical practices, but influence from non-Chinese medical and pharmacy personnel must have been substantial in the Office for Muslim Medicine (established 1260) and the Ta-tu and Shang-tu Muslim Pharmaceutical Bureaus (established in 1292). There were imperial gardens for edible produce and flowers as

¹¹ Unschuld, op. cit., p. 224.

¹² Unschuld, op. cit., p. 245.

¹³ The summary of bureaucratic offices dealing with pharmaceuticals during the Yüan dynasty which is offered in this paragraph has been derived from David M. Farquhar, *The Government of China under Mongolian Rule: A Reference Guide*, Münchener Ostasiatische Studien Bd. 53 (Stuttgart: Franz Steiner Verlag, 1990), pp. 134-136, 299, 301; and from Charles O. Hucker, *A Dictionary of Official Titles in Imperial China* (Stanford: Stanford University Press, 1985), pp. 244, 263, 508, 577.

¹⁴ Farquhar, op. cit., p. 135.

well as for fodder for livestock, but it is not clear if there were herbaria specifically for drug manufacture similar to those that existed in the Chinese court before or the after Mongol rule.¹⁵ Methods of collecting *materia medica* are not clear. Was the Sung practice of allowing criminals to collect «medicinal herbs in lieu of punishments»¹⁶ continued after the Mongols came to power over China? Did the medicine fairs such as those in Szechuan during the mid-9th century continue?¹⁷ Many questions remain unanswered. Hence, a more complete, detailed study of pharmaceuticals during the Yüan dynasty remains to be written.

Preventive medicine seemed not to be so institutionalized either during the Mongol/Yüan dynasty or even considerably later in Mongolian history. But that did not mean that it was not practiced. «Ideas of prophylaxis against disease, whether or not the method recommended was reliable, were certainly also current in Mongolia in the eighteenth century. In [a] ... block print is given a recipe for preventing the excessive eruption of small-pox in children. Thirty seed[s] of the plant *dan-da*, an ounce of cinnabar and five grains of musk should be pounded up together, and at exactly midday on the fifth of the middle month of summer should be rubbed into the fontanelle, the hollow of the stomach, the part of the back immediately opposite this, the palms of the two hands, the soles of the feet, the two elbows, the knees and the two sides of an uninoculated child until none of the ointment remains. The treatment should be repeated at midday on the seventh of the first month of autumn. Even though the pox may break out after the first application, the attack will be light. These applications should give immunity against small-pox, and six or seven confer a wider immunity.»¹⁸ This one recipe contained a number of important elements. First, the *materia medica* used came from plants (*dan-da*), minerals (cinnabar), and animals (animal by-products: musk). Second, the plant *dan-da* came from the Tibetan *materia medica*; it is *Ricinis communis L.* or the castor oil plant.¹⁹ In Chinese medicine, the seeds of this plant were powdered or the oil was extracted and then used to treat a variety of skin ailments.²⁰ Third, the medicine given, based on the four seasons, was a common feature in traditional Mongolian medicine, applicable to both man and animal.

¹⁵ Hucker, op. cit., #7905 and 5190 on pp. 577, 420 respectively.

¹⁶ Hucker, op. cit., #5469, p. 437.

¹⁷ Schafer, op. cit., p. 179; p. 183 for other trade routes.

¹⁸ Charles R. Bawden, «The Supernatural Element in Sickness and Death according to Mongol Tradition. Part I», *Asia Major* 8 (1960-1961): p. 218, note 7.

¹⁹ Buryatskii Nauchnyi Centr SO RAN & al., *Atlas tibetskoi mediciny. Svod illyustracii k tibetskomu medicinskomu traktatu XVII veka «Goluboi berill»* (Moskva: Izdatel'stvo Galart, 1994), 33/80. Hereafter designated *ATM*.

²⁰ James A. Duke and Edward S. Ayensu, *Medicinal Plants of China*, I-II (Algonac, Michigan: Reference Publications, 1985), pp. 311-312. They do mention a good number of plants for smallpox treatment, but the castor oil plant is not one.

To say, however, that all Mongolian medicine is derived from Tibetan medical practice is an oversimplification of a very complexly infused system of medicine. Beyond Mongolia, the «information highways» across Inner Asia were never one way. *Materia medica* was no exception to this generalization, yet it has long been ignored for the more famous trade in silks, horses, and teas. Hidden within the trade in foodstuffs, spices and aromatics, were also medicinals, including poisons. It was probably also true, given the sometimes secretive nature of medicines, that trade routes and carriers may have been very different. For example, *Ephedra* plants were used in Tarim burials;²¹ or centuries later, Nandi, a Central Asian herbalist and merchant served the Chinese court in the 660s. Compounded drugs such as a resin from the «Western *t'ung*» in mixture with wood and earth were imported to China from the Gobi and the northwestern areas of present-day China.²² Even the spiritual background, embodied in the main Medicine Buddha, Bhaiṣajyaguru, entered Mongolia from Central Asia. The *Sūtra* for Bhaiṣajyaguru used *otači* for 'physician', 'doctor', 'herbalist', from the Uighur *ota* 'medicinal herbs.'²³ Substances used in the treatment of the sick fell into two broad categories: *materia magica* (more a part of the shamanic tradition) and *materia medica* (from either folk medicine or more formal medical traditions, including indigenous Mongolian, Central Asian, Tibetan, Chinese, and more recently Russian).

Within Mongolia, folk medicine and formal medicine stood «side by side».²⁴ Certainly Tibetan medicine, including influences from India, did play a major role in Mongolian medicine and, therefore, also in the selection of *materia medica*. Although Mongol contact with Tibetan Buddhism began in the mid-13th century, it did not become firmly entrenched until the 16th century. Then, in the 17th–18th centuries, a kind of Buddhist renaissance occurred. This included the translation of texts. For example, the *Mahāvvyutpatti*—a Sanskrit-Tibetan dictionary of Buddhist terminology originally compiled in the early 9th century—had a Mongolian part prepared and added during this Buddhist renaissance. It

²¹ See Harry Falk, «Soma I and II», *Bulletin of the School of Oriental and African Studies* 52 (1989): 77-90. Dale Pendell, *Pharmakodynamis: Stimulating Plants, Potions and Herbcraft. Excitantia and Empathogenica* (San Francisco: Mercury House, 2002), has posited an Ephedra Trail in ancient Central Asia, with map; see pages 132ff, 136 for map.

²² Schafer, op. cit., p. 187.

²³ See, for example, György Kara, «Late Mediaeval Turkic Elements in Mongolian», in *De Dunhuang à Istanbul. Homage à James Russell Hamilton*, Silk Road Studies V., edited by Louis Bazin and Peter Zieme (Turnhout: Brepols, 2001), p. 104. Compare also with *ota*- 'to treat with medicinal herbs' in Sir Gerard Clauson, *An Etymological Dictionary of Pre-Thirteenth-Century Turkish* (Oxford: At the Clarendon Press, 1972), p. 42. For Mongolian facsimiles of this *Sūtra* see: Lokesh Chandra, *Early Buddhist Texts in Mongolian*, I-II (New Delhi, 1982), pp. 712-761.

²⁴ Bawden, op. cit. (1960-1961): 217.

contained a section on the «Names of Mineral Springs, Elixir and Medicines» (*Rasiyan terigüten sim-e-yin em qariyatu-yin ner-e anu*) with a long list of «Names of Curing Medicines» (*Tejiyeküi em-ün ner-e anu*).²⁵ Many plants of Indian and Himalayan origin were listed including poisons with their antidotes, plus herbs, spices, fruits, and trees—all used in medicine. One example, the tropical plant myrobalan (*Terminalia chebula* T., spp.; Mongolian: *arur-a* ~ Tibetan *a-ru-ra* ~ Tocharian *arirâk* ~ Sanskrit *haritaka*), was registered; it was a plant often used as a panacea and depicted in illustrations of the Medicine Buddha,²⁶ but myrobalan is not native to Mongolia.

With the Tibetan lamas came a long, well-established medical tradition and system of education within the lamaseries. For our purposes, this is certainly evident from some of the terminology borrowed by the Mongols. For example, Tibetan medicine had medicine bags with the additional meaning of «portable pharmacies» known as *smān-khug* which the Mongolians borrowed: Cl. Mongol *mangqay*, *mangquy* ~ Khalkha *manxag*. So, too, was a new term for «herbalist» in a medical sense borrowed from the Tibetan *smān-bla* into Mongol *otači manle*, which in itself is important because it separated the «herb» doctor from other types of practitioners; it also grafted the Tibetan (*smān-bla* > Mongol: *manle*) onto the earlier Uighur term (*ota* > Mongol: *otači*). Both the medicinal dosage and the implement used to measure it were also borrowed from Tibetan *thun* into Cl. Mongol *tung* ~ Khalkha *tun(g)*. Medicinal plants were called in Mongolian *em-ün uryamal* where *em* (medicine/doctor) reflected Tibetan influence, separate from, but again not devoid of earlier Buddhist influence upon folk doctors. For example, in the shamanic tradition of the Mongols, Black Tngri had medicine in his thumb and the art of healing in his index finger.²⁷ The older shamanic and animistic sediment in Mongolia penetrated the new Lamaist Buddhist medical practices. Separation of the sacred (animistic, shamanistic, Buddhist, or Lamaist Buddhist) from the medical and by extension, the scientific, has been more a Western philosophical trend than a Mongolian one.

Some reports on Mongolian *materia medica* and its Tibetan influence were quite misleading. A case in point is that of Huc and Gabet who wrote that «...the Tartar [i.e. Mongolian] pharmacopeia rejecting all mineral chemistry, the Lama remedies consist entirely of vegetables pulverized, and either infused in water, or made up into pills. If the Lama doctor happens not to have any medicine with him, he is by no means

²⁵ Alice Sárközi in collaboration with János Szerb, *A Buddhist Terminological Dictionary: The Mongolian Mahāvīyutpatti*, Asiatische Forschungen Bd. 130 (Wiesbaden: Harrassowitz Verlag, 1995), pp. 393-396.

²⁶ For the terms, see Ferdinand D. Lessing, *Mongolian-English Dictionary*, corrected re-printing with a new supplement (Bloomington: The Mongolia Society, 1973), p. 55.

²⁷ Heissig, op. cit., p. 108.

disconcerted; he writes the names of the remedies upon little scraps of paper, moistens the papers with his saliva, and rolls them up into pills, which the patient tosses down with the same perfect confidence as though they were genuine medicaments. To swallow the name of a remedy, or the remedy itself, say the Tartars, comes precisely to the same thing.»²⁸ There are a number of points here worth noting.

First, it is incorrect to say that only plants were used as medicines; both animals (or animal by-products) and minerals appeared in the Mongolian pharmacopoeia. Second, writing the name of a remedy on paper and swallowing it was a common practice and widespread. Third, it raised the most important question of substitute medicines when the prescribed drug is not available. How these substitutes were chosen, especially other plants, is an important and seldom studied detail. Reliance on the appearance of a medical plant was not the sole determinant in choosing an alternative. The very properties of the plant were important, such as its taste (sweet, sour, salty, bitter) or its «nature» («hot» or «cold») as a means of classifying its medical use. As a result, substitute medicinals added both individual skill and regional knowledge to a tradition borrowed from elsewhere, thereby rendering a new medical/pharmacological tradition.

After the Lamaist Buddhist renaissance, various travelers to Mongolian regions became sufficiently interested in local medical treatments to collect lists of *materia medica*. One such list may be found in the work of Hans S. Kaarsberg (1854-1928), a Danish physician who ventured among the Kalmyk Mongols in 1890. He acquired the list from the «Druggist *Normann* in Stavropol, who has studied Kalmyk medicinal usage for his own interest.»²⁹

Scholarly research on medicinal plants in Inner Asia has often followed two distinct tracks: western scientific classification and linguistic. Botanists tended to be most interested in classification, with detailed descriptions, sometimes including chemical properties,³⁰ but seldom provided local names for the plants or how the plants fitted into

²⁸ Evariste-Régis Huc and Joseph Gabet, *Travels in Tartary, Thibet and China, 1844-1846* (1851; reprint edition, New York: Dover Publications, 1987), I., p.88.

²⁹ Hans S. Kaarsberg, *Among the Kalmyks of the Steppes on Horseback and by Troika. A Journey Made in 1890*, translated from the Danish, abridged and edited by John R. Krueger, with the collaboration of Arash Bormanshinov, Occasional Papers Number 13 (Bloomington: The Mongolia Society, 1996), pp. 89-90.

³⁰ Useful are early lists of botanical discoveries in the region by E. Bretschneider, *History of European Botanical Discoveries in China*, I-II (London: Sampson Low, Marston and Company, 1898; reprint edition Leipzig: K. F. Koehlers Antiquarium, 1935) and by A. Franchet, *Plantae Davidianae ex Sinarum imperio. Première partie. Plantes de Mongolie du nord et du centre de la Chine* (Paris: G. Masson, 1883-1888; reprint edition Lehre: Verlag von J. Cramer, 1970). An especially useful new source is being compiled by Rod Randall in Australia as *A Global Compendium of Weeds*; see the current on-line web data base at: <http://www.hear.org/gcw>.

traditional medicine, until the recent rise of the field of ethnobotany. This has been useful in identifying plants for western knowledge, but does not consider the totally different approach to classification in eastern or Inner Asian societies, which must be examined to fully appreciate the plants used or substituted for any given treatment. Altaic specialists most often approached plants from a linguistic point of view, and although they may or may not have supplied scientific nomenclature, usually ethnographic details on plant usage were lacking. Occasionally, individual plant species were studied in terms of local custom and medical usage, especially those plants with a more worldwide custom or market. First, various narcotics (from the hemp seed smoke of the Scythians to the opium trade in today's Central Asia), tobaccos, and alcohols (though not always grain derived) were approached in terms of the evils of substance abuse. Second, such plants as tea, rhubarb, ginger, and ginseng have received a much wider attention as medicinals, past and present. Most of the rest have been sadly neglected.

Some early attempts were made by western scholars to more clearly define the Tibeto-Mongol *materia medica*, most notably, that of Franz Hübötter. Although his study covered the entire spectrum of medicinals—including not only the Tibetan and Chinese, but also Mongolian terms for the drugs—it has remained problematic.³¹ Work directly related to Mongolian medicinal plants has also been lost: W. A. Unkrig (1883-1956) had prepared a German translation of both the Tibetan and Mongolian of *Dörben ündüsün* (the Mongolian title of «Four Roots»), but «it was, alas, destroyed together with a great part of his private library» in the bombing of Frankfurt during WWII.³² Such events have, in turn, led scholars back to textual studies. One work, a Tibeto-Mongolian *materia medica* of 'Jam-dpal-rdo-rje (fl. 19th century), deserves more attention than it has received. In Tibetan, with illustrations, most entries have the Chinese for the *materia medica*; some also have the Mongolian, Manchu, or Sanskrit.³³

It should also be noted that folk medicine or folk remedies often were not written down. Interest in such practices were often stimulated or challenged by more established medical traditions evolved through texts,

³¹ Franz Hübötter, *Beiträge zur Kenntnis der chinesischen sowie der tibetisch-mongolischen Pharmakologie* (Berlin: Urban und Schwarzenberg, 1913); revised edition (Ulm/Donau: Karl F. Haug Verlag, 1957).

³² The «massive manuscript» of the *Four Roots* was seen by Herbert Franke in the Fall of 1940. I would like to thank Prof. Franke for this information sent to me in a letter dated 28 September 2002.

³³ 'Jam-dpal-rdo-rje, *An Illustrated Tibeto-Mongolian Materia Medica of Āyurveda of 'Jam-dpal-rdo-rje of Mongolia*, edited by Lokesh Chandra (New Delhi: International Academy of Indian Culture, 1971). See also L. W. J. van der Kuijp, «An Index to a Tibeto-Mongolian Materia Medica», *Canada Mongolia Review* 1 (1975): 15-46.

applied practice, and a system of education. This was especially true when Western medicine came into contact with both institutionalized and folk medical practices in Inner Asia, including Mongolia. As a consequence, these new medical ways were fiercely resisted by lama medical practitioners who preferred to stand on old traditions. By the early 1920s and all over Mongolian regions, effectiveness outweighed tradition and the sick sought alternatives from Chinese herbalists or pharmacies, foreign missionaries or travelers, or wrote to request medicines from various officials. Oddly enough, interest in traditional pharmaceuticals arose; recipes were written down and often tested for scientific value. Initially this was done by western medical personnel to discredit the effectiveness of such treatments; later Mongolian practitioners saw their medicines both as a supplement or alternative to Western medicine as well as a challenge to it.

This interest in traditional *materia medica* has continued in Mongolia to the end of the 20th century as western medicinal supplies have dwindled either because of production shortages or financial constraints. Hence, in recent years, a new wealth of material on Mongolian medicinal plants has appeared. Many new books and pamphlets have been published on medicinal plants for both man and animal.³⁴ Most remain to be evaluated. Practical measures were also taken to ensure drug supplies. This included new research on medicinal plants, especially in the Bulgan River area, the introduction of cultivated medicinal plants, and stepped up production of drugs derived from rare plants at the pharmaceutical plant in Ulaanbaatar. This renewed interest in medicinal plants does not always solve problems presented in old medical prescriptions.

For the vast majority of medicinal plants, it is almost impossible to date when a particular plant entered the *materia medica* of Mongolia, remembering that often such remedies were not recorded until a much later time. Once it did enter, even if from one or many, now mixed, medical traditions beyond Mongolia, the medicinal plant became a property in Mongolian medicine. This meant a number of things. (1) Initially, it was probably used in a manner identical to that at the time it was acquired, if from outside Mongolia. From within the Mongolian ken, it may have simply been accidentally discovered to have beneficial properties, and thus was added to the pharmacopoeia. (2) If that particular plant was not native to Mongolian soil, substitutes had to be found. Even those lamas who gathered and/or dispensed such medicines were likely to be Mongolian; some may have received training in medical colleges (*mampa-tatsang*) attached to their monastery in Mongolia or acquired

³⁴ Only a few of the many new books or pamphlets have been listed in the bibliography; see Bazarragchaa (1988), Ligaa (1996-1997), Lxagvasüren (1998), Süxbat (1995), Xiadav & al. (1996).

additional expertise on pilgrimages made to Tibet. For example, we know that a Buriat pilgrim, Lubsan Midžid-Dordži, who traveled from Khalkha areas (1882) to southern Mongolian banners in China and to Tibet (1883), wrote of the «...wonderful mountains, called the *Alašan* mountains, that rise rich in several kinds of medicinal herbs...»³⁵ The degree of training could be vital; the best trained often had access to many more medicines, but also were much more likely to serve only the wealthiest individuals or the court. The commoner depended usually upon the poorest trained and had little means of payment for services rendered. (3) There is no reason to suppose that there were not purely Mongolian adaptations made to medical prescriptions based on similar plant properties and the direct cost of the drug related to the patient's ability to pay for the treatment for himself, his family, or his livestock. (4) Mongolian traditional folk remedies were also important, particularly those with a seasonal application whether for man or animal.

The importance of studying the history of a given field, as well as knowledge transfer across societies and disciplines can only deepen the appreciation and understanding of diverse cultures. This has long been a hallmark of Harry Halén's work. This contribution, offered in celebration of his sixtieth birthday, is an example of his continuing influence on research and history.

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