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TEXTUAL HEALING

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CHAPTER TWO

ORDERING HUMAN GROWTH IN TIBETAN MEDICAL AND RELIGIOUS EMBRYOLOGIES

Frances Garrett

Buddhists throughout history and across Asia considered knowledge of embryology to be an important aspect of both medical and religious thought and practice. Embryology has been historically, and is still today, a forum for Indian and Tibetan scholars and practitioners of different traditions to set forth their own philosophical views, and the widespread effects of these debates point to the prominence of embryological thinking in the greater Buddhist milieu. Although in much of the modern world embryological details are now scientific questions, in the ancient Asian world "scientific" details such as these were often quite centrally religious or philosophical issues.

This essay focuses on embryology as it begins to appear in Tibetan texts from the eleventh and twelfth centuries. This includes works authored by Tibetans from this period onwards, works translated into Tibetan from other languages, and works from previous centuries that continued to hold great importance. The centuries preceding these witnessed the breakup of a Tibetan empire that spanned Central Asia over a period of several centuries, the persecution of Buddhist culture and scholasticism, and a dramatic range of social, political, and economic transformations across Tibet and surrounding regions. Following these upheavals, a new wave of Buddhist texts and other forms of intellectual culture arrived in Tibet from India and neighboring territories, and Tibetans themselves began anew to produce a wide variety of literary materials. Over the next several centuries, major monastic centers were transformed into centers for the production, circulation, and transmission of scholastic knowledge of various types, including medical knowledge. The concentration of physicians in Buddhist monastic centers, the high political position of physicians, and their increasing role as cultural agents in the following centuries point to an important relationship between the religious hierarchy and medical scholars and practitioners.

Embryology was an important and contested theoretical topic throughout the history of Indian literature. Many of these conflicting views were known to Tibetans of the eleventh and twelfth centuries. During this period vast amounts of literature poured across the borders of Tibet. How did Tibetans evaluate such an eclectic mix of foreign ideas, and how did they adapt these materials to meet their own concerns? As scholars and authors in their own right, how did Tibetans determine when originality was acceptable, and when adherence to tradition was required? Despite—or perhaps because of—Tibet's longstanding contacts with China and Central Asia, intellectual controversy in eleventh-century Tibet was characterized by a great concern to uphold India, the ultimate source of Buddhist high culture, as the ideal authorizing source. Tibetan scholars at this time possessed several sources for embryology with which they could easily have maintained this link to India, and yet, as we will see, in embryology this link was broken. During this tremendously formative period in Tibetan history, Tibetans categorized objects of scholarship: whereas some topics required an external legitimating authority, with other topics, Tibetans themselves could exercise individual discretion. During this process, the future of Tibetan embryology, and Tibetan medicine, was determined.

Embryology in Tibetan medicine and religion

Over the last thirteen hundred years, Tibetan medical traditions have produced a vast corpus of literature analogous in complexity to the medical scholasticism of India, China or Greece. Indeed, these three great medical traditions directly influenced the historical development of Tibetan medicine.[1] Tibetan medical practice is guided by an understanding of the body that is intricately related to the subtleties of philosophy, astrology, religion and other aspects of thought in Tibet. In Tibetan medicine, as in Indian Āyurveda, health is about maintaining "appropriate" relationships: internally, with respect to a complex of psychophysical elements, and externally, with respect to

[1] See, for example, Christopher I. Beckwith, "The Introduction of Greek Medicine into Tibet in the 7th and 8th Century," *Journal of the American Oriental Society* 99 (1979), Robert Svoboda and Arnie Lade, *Chinese Medicine and Āyurveda* (Delhi: Motilal Banarsidass, 1999).

one's relation with the environment. Tibetan medical systems are practiced widely today in the countries of Nepal, Bhutan and Mongolia; in many areas of the People's Republic of China; in parts of Russia; and throughout India. The use of Tibetan medicine is growing in Europe, North America and the Pacific Rim as well.

Medicine has been a significant part of Buddhism since the religion's origins in India.[2] Developing alongside the Buddhist monasteries and supporting communities in India, medical knowledge was codified in Buddhist scriptures, eventually producing monk-healers and Buddhist monastic hospices and infirmaries, and finally becoming part of the standard curriculum in monastic universities. Indeed, the organization of early Buddhist teachings is often said to follow a medical paradigm: the religion's central doctrine, that of the four noble truths, is structured as a medical diagnosis, with the Buddha likened to a physician. As a religion where salvation is defined as relief from suffering, it is not surprising that it should find in medicine a reservoir of concepts or terminology.

Embryology is found in both medical and religious forms of Tibetan literature. Tibetan medical texts that contain descriptions of human anatomy and physiology generally begin with a chapter detailing the mechanics of conception and the process of fetal development. Underlying these theories is the Buddhist belief in transmigration, or rebirth, where a consciousness travels from one body to the next in an unending series of lifetimes. Conception occurs upon the confluence of three conditions: the male reproductive contribution, called "semen," the female reproductive contribution, called "blood," and a transmigrating consciousness awaiting rebirth. When a transmigrating consciousness locates a suitable couple in intercourse, it is said by some traditions to be drawn there by the forces of the three "destructive emotions," delusion, attachment, and anger.[3] These three emotional

[2] See Joseph Mitsuo Kitagawa, "Buddhist Medical History," in *Healing and Restoring: Health and Medicine in the World's Religious Traditions*, ed. Lawrence Sullivan (New York: Macmillan Publishing Co.), Fernand Meyer, *Gso-ba rig-pa. Le systeme médical tibétain* (Paris: Presses du CNRS, 1988), Fernand Meyer, "Introduction: The Medical Paintings of Tibet," in *Tibetan Medical Paintings: Illustrations to the "Blue Beryl" treatise of Sangye Gyamtso (1653–1705)*, ed. Gyurme Dorje and Fernand Meyer (New York: Harry N. Abrams, Inc. Publishers, 1992), Kenneth Zysk, *Asceticism and Healing in Ancient India* (New York: Oxford University Press, 1991).

[3] According to the Buddhist theory of the three "poisons" (*dug*) or "destructive emotions" (*nyon mongs*), the cause of human suffering is ignorance (*gti mug*) and its

forces are the center point of Buddhist ontology. By this account, the transmigrating consciousness experiences attraction to one parent and anger toward the other, and due to these disturbing emotions the postmortem period ceases and a new being is conceived in the womb. Following conception, full embryological descriptions generally detail thirty-seven or thirty-eight weeks of development, with a week-by-week accounting of the formation of the psychophysical body.

In addition to being prominent in certain forms of medical literature, embryology is also found across all sectarian classifications of Tibetan religion, which has been primarily Buddhist since the eighth century. Embryological practices in Buddhism are not restricted to an isolated group of traditions, but, in fact, their influence reaches across the Asian world. Religious practices modeled after embryology have popular as well as esoteric versions, and are practiced still today in the religious communities of Tibet, India, China, Cambodia, and Japan.[4] In Tibetan Buddhist literature, complex religious contemplative practices are modeled after the process of fetal development, making embryology a central part of many religious texts.[5] The academic study of fetal development provides the advanced religious practitioner with an accurate description of the erroneous developmental path of an ordinary human being, and this gives him or her the key to learning to repeat this process through meditative practice without committing such error. Tibetan Buddhists believe in reincarnation, and so, for many traditions, ultimate spiritual enlightenment is defined as escaping the cycle of rebirth. Religious practitioners therefore explicitly aim at stopping the cycle of death and rebirth through practices modeled after the actual processes of death and rebirth. For many Buddhists, the most profound liberative techniques, and those considered the most advanced and most effective, claim embryological knowledge to be supremely important.

associated "poisons" of attachment, or desire (*'dod chags*), and hatred, or aggression (*zhe dang*). The theory of the three poisons is intensively studied in Buddhist philosophical and psychological literature.

[4] For descriptions of such popular practices, see Helen Hardacre, "The Cave and the Womb World," *Japanese Journal of Religious Studies* 10, no. 2–3 (1983).

[5] For a description of one tradition of Buddhist embryology, see Jeffrey Hopkins and Lati Rinpoche, *Death, Intermediate State and Rebirth in Tibetan Buddhism* (Ithaca, N.Y.: Snow Lion Publications, 1979), 31–32.

Indian sources for Tibetan embryologists in the eleventh century

In the history of Tibetan medicine, Indian Āyurveda holds an unmatched place of influence.[6] Classical Indian Āyurveda itself is closely related to a range of philosophical systems, the Hindu Nyāya-Vaiśeşika and Sāṃkhya schools playing perhaps the largest roles. Āyurvedic theory is also influenced by Yoga traditions concerned with controlling the mind and senses and avoiding excess, and by early tantric principles emphasizing the body and the structural equivalence of macrocosm and microcosm. The conceptual systemization of these philosophical systems into medical theory owes much to the medical treatises of three Indian scholars, Caraka, Suśruta, and Vāgbhaṭa. Their works are still today considered to be the seminal literature of the Āyurvedic tradition. Each of these scholars' texts represents a conglomeration of many theories of the day—while Sāṃkhya and Vaiśeşika theoretical structures are often most clearly evident, the medical texts exhibit similarities to Vedānta, Nyāya, Yoga, Buddhist and Jain philosophical and religious doctrines as well.

In eleventh-century Tibet, the most influential Indian medical text with a presentation of embryology was Vāgbhaṭa's *Aşṭāṇgahṛdayasaṃhitā* (Tib. *Yan lag brgyad pa'i snying po bsdus pa*, referred to from this point in English as the *Eight Branches*).[7] Vāgbhaṭa was a seventh-century Indian medical writer with Buddhist tendencies who was known outside India as well as within, as attested by mention of his works in the travel books of the Chinese pilgrim I-shing.[8] Vāgbhaṭa's text and its Indian commentaries, along with other medical texts that were not sources for embryology but for other medical topics, were included

[6] The maturity of the Tibetan system of pulse analysis, a means of diagnosis not present in Āyurveda until the twelfth century, suggests other influences as well, such as from Chinese traditions or indigenous Tibetan systems. See Tom Dummer, *Tibetan Medicine and Other Holistic Health Care Systems* (New Delhi: Paljor Publications, 1988) or Robert Svoboda and Arnie Lade, *Chinese Medicine and Āyurveda* (Delhi: Motilal Banarsidass, 1999).

[7] See Ronald Eric Emmerick and R.P. Das, *Vāgbhaṭa's Aşṭāṇgahṛdayasaṃhitā. The romanised text accompanied by line and word indexes*, Groningen Oriental Studies XIII (Groningen: Egbert Forsten, 1998), Claus Vogel, *Vāgbhaṭa's Aşṭāṇgahṛdayasaṃhitā, the first five chapters of its Tibetan version*, Abhanglungen fur die Kunde des Morgenlandes (Wiesbaden: Deutsche Morgenlandische Gesellschaft, Komissionsverkag Franz Steiner GMBH, 1965).

[8] Vogel, 8.

in the Tibetan Buddhist canon, and they form some of the primary sources for later Tibetan studies of embryology. Following the structural model of the two medical authors, Caraka and Suśruta, Vāgbhaṭa's *Eight Branches* has 120 chapters. His Sūtra-sthāna, the section on the human body, has six chapters: on embryology, disorders of pregnancy, parts of the body (anatomy and physiology), classification of vital points, signs of death, and dreams and omens. The chapter on embryology covers topics such as the formation of the embryo, determination of the embryo's sex, menstruation, the features of healthy reproductive fluids, fertile periods, ceremonies for conception in general and conception of a male child in particular, signs of pregnancy, the sequence of fetal development, practices of labor and delivery, and postpartum care. The famous Tibetan medical text, the *Four Tantras*, and most medical texts on the body in Tibet loosely replicate the structure of this book subsequently. Despite this text being one of the most widely cited sources in Tibetan medical literature, however, we will see in that in many respects its authority is disregarded in the context of embryology.

The *Eight Branches* reached Tibet via Nepal in the eleventh century and was translated from Sanskrit into Tibetan by the prolific translator Rinchen Zangpo (*rin chen bzang po*, 957–1055). Two Indian commentaries of this text were also quickly made available to Tibetans, and these works were carried through a lineage of students. The famous Tibetan physician Yuthog Yonten Gonpo (*g.yu thog yon tan mgon po*, 1112–1203) himself is said to have relied on this text especially as a guide in his medical practice for the first part of his life, until he received, edited and made public the Tibetan medical text, the *Four Tantras*.[9]

Indian medical texts were not the only sources for embryological information available to Tibetan scholars, however, and Indian Buddhist religious scriptures featuring embryology were widely used by Tibetans as well. Among Buddhist *sūtra*, canonical scriptures cited as the speech of the Buddha himself, the most heavily utilized source for embryological detail by early Tibetan authors is the *Scripture on Teaching to Nanda about Entry into the Womb*.[10] In this text the Buddha

[9] sangs rgyas rgya mtsho, *gso rig sman gyi khog 'bugs* (Dharamsala: Tibetan Medical & Astro Institute, 1994), 229.

[10] *Āyuṣhmannandagarbhāvakrāntinirdesha, tshe dang ldan pa 'dga' bo la mngal du 'jug pa.* Peking edition (Tokyo-Kyoto: Suzuki Research Foundation, 1955), 760.13, vol. 23.

explicitly describes the factors necessary for conception and the entire embryogenical process. This scripture is extensively quoted by nearly every Tibetan author who writes about embryogenical development in both medical and religious traditions and was certainly available to Tibetans by the eleventh century, if not for some time before then. During debates on embryological topics, other Buddhist scriptures are referred to as well as authorities on such topics as the process of transmigration, the nature of the transmigrating entity, the workings of karmic causality, the influence of the four (or sometimes five) natural elements,[11] the relationship between the mind and the body, and other topics relevant to physical and mental development. The other significant class of Indian religious texts utilized by Tibetan authors discussing embryology and embryological symbolism are the Indian tantric texts. Detailed contemplative practices explicitly modeled after the processes of human conception, development, and birth are present in a wide range of Indian Buddhist tantras, such as the *Kālacakra, Vajrabhairava, Guhyasamāja, Cakrasaṃvara, Saṃvarodaya*, and *Hevajra* tantras, as well as in numerous exegetical works.

At the time of the eleventh and twelfth centuries in Tibet, therefore, Tibetans had available to them a range of sources from which to study Indian embryologies: Vāgbhaṭa's medical text placed embryology in the context of the study of human anatomy, physiology and obstetrics; the Buddhist *sūtra* located embryology in the context of religious teachings on suffering and ethical behavior; and in the contemplative practices and rituals of the Buddhist tantras, embryology was taught as a model for spiritual development. How these various embryologies are interpreted at this point in Tibetan history, how these interpretive choices are made, and how those choices shape

[11] In the context of medicine, the theory of the four or five natural elements states that all phenomena, including the human body, are composed of dynamic forces or "energies," earth, water, fire, air, and (in some accounts) space. An imbalance of these energies can result in a state of disease for the human body. These elements are also linked to the three humors. These elements are said to refer not to static states but dynamic functions, where, for instance, the earth energy refers to the quality or function of hardness, or the water energy refers to the quality or function of cohesiveness, flexibility or coolness. Thus, within the human body, the earth energy influences tissue and bones; the water energy influences blood and other bodily fluids; the fire energy influences body temperature; the air energy influences respiration; and the space energy has to do with bodily cavities.

the future of medical and religious writing subsequently, are issues to be touched upon in the present essay.

Locating embryology in Tibetan medical literature

Although it is sometimes said that the practice of medicine is fully integrated with religious concerns in Tibet, the two are still disciplines and genres of literature with known boundaries in Tibet. Thus, for instance, Tibetan histories of medicine are defined as such in contrast to historical genres such as royal succession, monastic chronicles, religious histories, and so forth. According to the influential enumeration of ten "cultural sciences" (Tib. *rig gnas*), an Indic taxonomy codified in Tibet by the thirteenth-century scholar Sakya Pandita, the study of religion (Tib. *nang don rig pa*) and the study of medicine (Tib. *gso ba rig pa*) are two distinct members of the five major cultural sciences, along with the studies of language, logic, and "construction." Organized in the fourteenth century, the Tibetan Buddhist canon places medical texts under a category of "technical treatises," and until the seventeenth century medicine was taught in monasteries as one of the "worldly sciences."[12]

Medical literature in Tibet includes a wide range of topics. While there are texts that comprehensively cover a variety of topics and therefore do not fit easily into a single thematic category, the following synthetic survey describes a series of general thematic types associated with medicine in Tibet. Like other academic disciplines in Tibet, medicine has been highly scholastic in nature for over a millennium. Although many thousands of Tibetan texts were destroyed in the last century during the Cultural Revolution, ancient texts can still be found in monastic or private libraries, and increasing numbers of these are now being published. Many Tibetan scholars today

[12] The concepts of literature or literary genre are of Euro-American origins and their applicability to the Tibetan context must be questioned. Nonetheless, there are Tibetan means of subdividing types of knowledge that can, at least loosely, correspond to forms of Tibetan textual output. The classification of the cultural sciences is one such taxonomy, although it must be remembered that it too is an import from India that has been overlaid upon the Tibetan context, with varying levels of suitability. For comments on this issue see Jose Ignacio Cabezon and Roger R. Jackson, "Editors' Introduction," in *Tibetan Literature: Studies in Genre*, ed. Jose Ignacio Cabezon and Roger R. Jackson (Ithaca, N.Y.: Snow Lion Publishers, 1996).

in Tibetan communities around the world continue to author and release new texts on all aspects of medicine as well.

Categories of Tibetan medical literature

- Nosological texts
- Texts on pharmacy and *materia medica*
- Dictionaries
- Histories of medicine
- Biographies of medical figures
- Medicine Buddha liturgies
- Descriptions of the human body
- Documents on medical iconography
- The *Four Tantras* and its commentaries

Texts on nosology, pharmacy and *materia medica* form the bulk of Tibetan medical literature. Texts on pharmacy and *materia medica* describe therapeutic prescriptions that involve the combination of medicinal substances, discussing the identification, collection methods and preparation of these substances. Many therapeutic techniques are pharmacological in nature, and some are also focused on ritual, meditation, or religious recitations (*mantra*). Reference works include dictionaries—some quite ancient—of specialized medical terminology. There are a number of Tibetan works on the history of medicine, and medical history is also occasionally discussed as a separate topic within general Tibetan histories. Biographies of medical figures are important sources for historical data as well.

The category of medical literature involved in discussing the human body—such as the subjects we know as anatomy and physiology—is not clearly defined. Several chapters of the *Four Tantras* are the primary examples of this type of medical writing. The *Four Tantras* is considered the principal medical text in Tibetan medicine still today.[13] Although the origins of this seminal text are uncertain, it

[13] There are several editions of this text, including *Bdud rtsi snying po yan lag brgyad pa gsang ba man ngag gi rgyud.* (Delhi: Bod kyi lcags po ri'i dran rten slob gner khang, 1993); (Lhasa: Bod ljongs mi dmangs dpe skrun khang; Bod-ljongs Sin-hwa dpe tshong khang nas bkram, 1982). For discussion of early editions of the *Four Tantras*, see Meyer, "Introduction: The Medical Paintings of Tibet," 6, and Natalia D. Bolsokhoyeva, *Introduction to the Studies of Tibetan Medical Sources* (Kathmandu: Mandala Book Point, 1993), 25–26. For translations of portions of this text see Ronald Eric Emmerick, "A chapter from the Rgyud-bzhi," *Asia Major* XIX, no. 2 (1975), Ronald Eric Emmerick, "Epilepsy according to the Rgyud-bzhi," in *Studies on Indian medical history*, ed. G.J. Meulenbeld and D. Wujastyk, Groningen Oriental Studies vol. II

seems to have been arranged in the definitive form we know today in the eleventh century by the famous Tibetan physician Yuthog Yonten Gonpo (*g.yu thog yon tan mgon po*, 1112–1203), probably following several centuries of development. While according to some historical traditions it is the translation of an Indian text, and according to others it is an indigenously Tibetan text, most scholars today agree that it must be indigenously Tibetan, but heavily influenced by Indian, Chinese, and other medical traditions. The entire text consists of one hundred and fifty six chapters arranged in four sections, or "books": the *Root Tantra* (*rtsa rgyud*), a verse synopsis of the text; the *Explanatory Tantra* (*bshad rgyud*), with a description of the human body and general information about the causes of disease and the principles of therapeutics; the *Secret Oral Tantra* (*man ngag rgyud*), containing specific instructions and methods of diagnosis; and the *Concluding Tantra* (*phyi ma rgyud*), containing specific information about various types of treatments. After the *Four Tantras* became widely known in Tibet in the thirteenth century, it began to amass a vast commentarial literature, with such compositions continuing to the present date.

Aside from the *Four Tantras* and its commentaries, there appear to be relatively few early medical texts devoted exclusively to discussion of the structure or function of the human body itself. Lists of early and medieval Tibetan texts in found in Desi Sangye Gyatso's seventeenth-century medical history include several texts that appear to focus on explication of the human body from the perspective of human dissection. Illustrations of the human body and illustrations of disease states and therapeutic activities may comprise an additional category of anatomical documentation. Fernand Meyer notes that today only one medical painting predating the famous series of seventeenth-century Tibetan medical paintings is known to exist, a fragmentary Dunhuang document depicting moxibustion points on a human figure. He points also to references in medical histories to early texts or documents that appear to include medical drawings,

(Groningen: 1987), *The Quintessence Tantras of Tibetan Medicine*, trans. Barry Clark (Ithaca, N.Y.: Snow Lion Publishers). Also see Todd Fenner, "The Origin of the rGyud bzhi: A Tibetan Medical Tantra," in *Tibetan Literature: Studies in Genre*, ed. Jose Ignacio Cabezon and Robert R. Jackson (Ithaca, N.Y.: Snow Lion Publications, 1996). Elisabeth Finckh, *Foundations of Tibetan Medicine According to the book rGyud bzi*, trans. Frederika M. Houser (London & Dulverton: Watkins, 1975).

from the twelfth, thirteenth, and fifteenth centuries. Meyer cites several early references to texts that may be dissection manuals with drawings as well.[14]

While the preceding survey gives one a sense of the range of medical literature, fully and accurately defining the boundaries of Tibetan medicine as a discipline would be quite complex. What about liturgical texts focusing on the Medicine Buddha? Such texts are traditionally—and still today—used by physicians, considered often to be an integral part of a responsible physician's practice. What are we to do with texts on alchemy, which clearly intersect with studies of pharmacy and *materia medica*? What about scriptures from the religious canons on yogic or dietary practices that are explicitly claimed to have healthful benefits? Further research is warranted to address these fascinating issues. For our purposes here, however, we may note that embryology is discussed by medical writers in the context of the study of human physiology and anatomy, rather than, say, in the context of gynecology and obstetrics, subjects that are addressed in other areas of the *Four Tantras*.

Debating the sequence of embryonic development

The varieties of Asian embryological literature exhibit an array of contentious topics. Questions that are pondered in embryology include: How precisely does the consciousness enter the mother's womb? What exactly is the role of the transmigrating being's own karma throughout the process of fetal development? Which are the primary causal forces responsible for directing fetal growth? What is the exact sequence of development of the fetus in the womb? Most of the issues discussed are rooted in complex philosophical problems that can also be found debated in other contexts in Buddhist religious and philosophical texts. In the present essay I will address debates over the sequence of fetal development.

[14] Meyer, "Introduction: The Medical Paintings of Tibet," 11. Some of these early sources for medical iconography are also mentioned in Bolsokhoyeva, 31–32. For an excellent analysis of medical iconography in Tibet, including comments on its relationship to Chinese medical iconography, see Meyer, "Introduction: The Medical Paintings of Tibet," 7–12. For lists of early texts on these topics, see sangs rgyas rgya mtsho, 154–155.

In early Indian literature, the development of the human body in the womb was described as a progressive layering of material elements, but there was much divergence of opinion among Indian writers about the precise sequence of development. With elaborate rationalization, some claimed the head appears first (because it is the seat of the senses), while others prioritized the heart (as the seat of consciousness), the navel (as the place where food is stored), the intestines (as the seat of air), or the hands and feet (as the principal organs). Like many other aspects of gestation, the question of when the fetus became conscious was disputed as well. Classical Āyurvedic accounts such as that of *Caraka* implied that this occurred at the moment of conception, while other traditions suggested that it occurs only later in fetal development: in the *Garbha Upaniṣad* a soul comes to the embryo after a gestation of seven months, and Hindu Purāṇic texts locate the time of consciousness entering the fetus in the seventh to ninth month. In many traditions of South Asian embryology, the fetus is said to have conscious experiences, at least toward the end of its stay in the womb, experiencing feelings of suffering, memories of past lives, and even sentiments of religious devotion.[15]

Many of these contentious debates continued as various forms of Indian scholasticism traveled to Tibet. For Tibetan medical texts in the *Four Tantras'* commentarial tradition, the navel is the first part of the embryo's body to form, and thus the navel is referred to as the "cause" (Tib. *rgyu*) of the body's development. The *Four Tantras* states that during the first month after conception, the embryo is transformed from a substance that resembles curdled milk in week one, to a lengthened and thickened substance (Tib. *nur nur po*) in week two, and by week three it resembles the semi-solid consistency of yogurt. After week three the *Four Tantras* and its commentaries follow the recommendation of the Indic medical text, the *Eight Branches*, that rituals be performed to transform the still undetermined sex of the embryo into that of a male. After a lengthy description of these rituals, the text continues, stating that in the fourth week the embryo will take on a rounded (Tib. *gor gor po*), oval (Tib. *mer mer po*) or

[15] For an overview of Indian medical systems see Surendranath Dasgupta, *A History of Indian Philosophy*, 5 vols. (New Delhi: Motilal Banarsidass, 1975), 2: 272–436; see 302–19 for a survey of Indian embryological traditions.

elongated (Tib. *nar nar po*) shape according to whether it will become as a boy, girl, or hermaphrodite (Tib. *ma ning*) respectively.[16]

In the fifth week of gestation the navel forms, and a week later the body's main circulatory channel extends from the navel. A preliminary form of the eyes develops in the seventh week around which the head grows the following week. In the ninth week the upper and lower torso form, followed by the shoulders and hips in the tenth week, the nine orifices of the body in the eleventh week, the five solid organs in the twelfth week and the six hollow organs in the thirteenth week.[17] In subsequent verses the texts specifies which aspect of the body is formed each week, up to the thirty-seventh. The sequence of fetal development specified in the *Four Tantras* is accepted by subsequent Tibetan commentaries on that text. As we will see below, however, despite this text's prominence in Tibetan medical history, it was not considered authoritative by a host of other Tibetan writers on matters of embryology and physiology.

In the fifteenth and sixteenth centuries, the prominent *Four Tantras'* commentators Kyempa Tsewang and Lodro Gyalpo both explicitly rejected theories that suggest that the head, legs, heart, or other organs are the first to develop in the embryo; significantly, their objections confirm the existence, and possibly the popularity, of such alternate views in Tibet during these centuries.[18] The rationale for their assertion of the originary function of the navel is a physiological

[16] These terms describing the shape of the newly conceived embryo are Tibetan translations of the Indic terms found in the Buddhist Pāli Canon, the Hindu *Mahābhārata*, and other early Indian sources. For a summary of inconsistencies in usage of these terms in early Indian sources, see Carl Suneson, "Remarks on Some Interrelated Terms in the Ancient Indian Embryology," *WZKS* 35 (1991).

[17] The five vital organs, or solid organs (*don lnga*), are the heart, liver, kidney, spleen, and lungs. The six vessel organs, or hollow organs (*snod drug*), are the stomach, small intestine, large intestine, bladder, gall bladder, and reproductive organs.

[18] The *Four Tantras Commentary*, written in 1479 by the famous physician Kyempa Tsewang (*skyem pa tshe dbang*, dates unknown), is a text still used by Tibetan medical students today; skyem pa tshe dbang, *rgyud bzhi'i rnam bshad* (zi ling: mtsho sngon rigs dpe skrun khang, 2000). The *Transmission of the Elders* by Lodro Gyalpo (*zur mkhar blo gros rgyal po*, 1509–1579) is the most famous medical work of the Zurlug school, or Southern Tradition, of Tibetan medicine, and is also still widely used by medical students today. This sophisticated commentary on the *Four Tantras* addresses medical knowledge and philosophical debates from a variety of schools of Tibetan medical and religious thought, using Tibetan sources dating back to the eleventh century and translated Indian sources as well. zur mkhar pa blo gros rgyal po, *rgyud bzhi'i 'grel pa mes po'i zhal lung*, 2 vols. (krung go'i pod kyi shes rig dpe skrun khang, 1989), Hereafter cited as Transmission of the Elders.

description of the importance of the navel to the embryo's connection with the mother's body. The tradition states that as the bodily constituents (Tib. *lus zungs*) are metabolized in the digestive processes taking place within the woman's body, a clarified essential substance is collected in her reproductive organs (Tib. *bsam se'u*), which are the reservoir of that clarified substance.[19] The reproductive organs are connected by two channels to the left and right side of the uterus (Tib. *bu snod*). These channels are also connected to the navel of the embryo residing inside the uterus. Through these channels, the nutrients produced from the woman's reproductive organs pass to the developing embryo. In this way, the embryo is said to be nourished, as a field is supplied water through irrigation canals that travel from a reservoir.

Although many, if not most, Tibetan-authored texts that describe embryogeny in any detail agree that the navel is the first aspect of the physical body to develop, this sequence is not, in fact, present in the primary Indian sources for embryology available to Tibetans, the *Entry into the Womb* scripture and Vāgbhaṭa's *Eight Branches*. In the *Entry into the Womb*, the structural form of the embryo is created from the fifth through the eleventh week of development. During those seven weeks the arms and legs, the fingers and toes, the eyes, ears, nose, mouth and excretory orifices, and the empty spaces of the body are formed. Only after this do the nutrient-providing navel,

[19] The seven bodily constituents (*lus zungs*) in Tibetan medical physiology are the nutritive substances (*dwangs ma*), blood (*khrag*), flesh (*sha*), fat (*tshil*), bone (*rus ba*), marrow (*rkang*), and the reproductive substances (*khu ba*). Each of these has specified functions in maintaining bodily structure and processes. After food has been digested it takes one of two forms, nutrients or wastes. This separation of nutrients from wastes occurs in the lower stomach area. Waste products are then further separated into liquids and solids and excreted as urine and feces. Nutrients pass to the liver and are metabolized to form the basic substances of the physical constituents. In the liver, the physiological processes of "decomposing phlegm" (*tshim byed bad kan*), "digestive heat" (*me drod*), and the "fire-accompanying wind" (*me dang mnyam pa'i rlung*) act to transform the nutrients into blood, which is sent throughout the body and then transformed into the next bodily constituent, flesh. Flesh is transformed by additional metabolic factors into bone tissue, which in turn produces bone marrow. The nutritive aspects of marrow produce the reproductive substances, semen and menstrual blood. The metabolic system of separation and transformation is precise, each substance providing direct nourishment for specific functions or organs of the body. The end-point of the entire metabolic process, which is said to take six days, is the creation of the reproductive substances, which are therefore considered to be the essential distillation of all the physical constituents. The quality of one's general health, as well as one's life span and complexion, are ultimately said to be determined by the quality of the reproductive substances.

the internal organs, and the circulatory channels form and begin to function. In Vāgbhaṭa's text likewise it is not until the third month, after the head, legs, and arms are formed, that the navel connects to the mother and begins to nourish the fetus. Curiously, neither Tibetan medical commentator Lodro Gyalpo nor commentator Kyempa Tsewang acknowledge the radical inconsistencies in sequence of development between the model of the Indian texts that they praise so highly in other contexts, on the one hand, and that of the *Four Tantras*, their own root text, on the other hand.

Other Tibetan authors deviate even further from the available Indian source materials. One of the lengthiest accounts of embryology in Tibetan literature is that of an important scholar of the Nyingma school of Tibetan Buddhism, Longchenpa (1308–1364). In his tantric text, the *Treasury of Words and Meanings*,[20] Longchenpa ignores completely the structure of the *Four Tantras* or other known early medical embryological sources, nor does he address the embryological topics deemed most important in those texts. His presentation bears only a faint resemblance to other Buddhist tantric texts. Although he states that the body develops from the embryo's navel, with the navel developing in the fifth week and preceding growth of the torso and limbs, Longchenpa offers an original analysis of fetal growth *prior* to the navel's development.

In Longchenpa's account, circulatory channels develop in the first week of gestation, and two tiny eyes are formed within these channels. In the second month, as the embryo is repeatedly dissolved and reconstituted by the natural elements,[21] the eyes, circulatory channels and other subtle features of Buddhist tantric physiology are generated. Longchenpa states that the embryo now arrives at the "fish stage" of gestation, idiosyncratically utilizing an Indic model of the Hindu god Vishnu's incarnations that is used by many tantric embryologies, as we will see below. In the seventh week, the elements cause the senses and internal organs to form (recall that in the *Four Tantras*

[20] The *Treasury of Words and Meanings*, *tshig don mdzod*, by Longchenpa (klong chen pa dri med 'od zer, 1308–1363) was translated by David Germano in his doctoral dissertation. David Germano, "Poetic thought, the intelligent universe, and the mystery of self: the tantric synthesis of Rdzogs Chen in fourteenth century Tibet" (Ph.D. Dissertation, University of Wisconsin, Madison, 1992). My discussion of Longhchepa's work is largely based on Germano's extensive research, and I am exceptionally grateful to him for generously sharing his unpublished manuscripts.

[21] Such activity does not occur in most Tibetan accounts of embryology but is clearly modeled after Buddhist descriptions of cosmology.

tradition described above, internal organs formed in the twelfth and thirteenth weeks), and the embryo is in "tortoise-like" stage of gestation. From this point onwards the embryo is no longer completely destroyed and reconstituted regularly, and the actions of the natural elements, while still essential, are subtler. In the eighth week, the limbs of the body are fashioned. During this week also Longchenpa states that the three humors and the emotions are activated. The body's flesh and blood are produced, and the embryo is in the "frog stage."

Longchenpa's account of development ends here, at the end of the eighth week, a total of fifty-six days. During this initial period the body is fundamentally formed, and for the remainder of gestation the elements continue to mature the embryo, and the nutrients from the mother's nutrients causes the growth of skin, hair and so on. The developmental sequence in this account is completely unlike that seen in the *Four Tantras*, the Buddhist scriptures, or the Indian medical traditions. Longchenpa focuses heavily on the early development of the subtle features of the body as known to tantric physiology. Especially distinctive in Longchenpa's system is the discussion of the two eyes that develop in the first week of gestation. While he distinguishes these from the physical sense organs—the actual eyes—these two eyes are symbolically equated to the organs of vision that are of such great importance to Longchenpa's particular philosophical view and system of religious practice. The eyes are especially important in his tradition because they are said to act as the conduit for the transmission of enlightened energy from internal to external areas of the body, and practices are prescribed for advanced contemplatives that rehearse this transmission of energy through the eyes. Thus, by locating the origins of eyes in the first week of gestation, Longchenpa uses the discourse of embryology to emphasize a central feature of his religious theory.

Still another Tibetan model of fetal development, in a text dated earlier than any mentioned above, including possibly even the *Four Tantras*, is found in the *Great Jeweled Wishing Tree*, by a Buddhist scholar of the Sakya sect, Drapa Gyaltsen (*grags pa rgyal mtshan*, 1147–1216).[22] In this text Drapa Gyaltsen explains that when the

[22] grags pa rgyal mtshan, "rgyud kyi mngon par rtogs pa rin po che'i ljon shing," in *The Complete Works of Grags pa rgyal mtshan*, ed. bsod nams rgya mtsho, Sa skya bka' 'bum (The Complete Works of the Great Masters of the Sa skya Sect of the Tibetan Buddhism), vol. 3 (Tokyo: The Toyo Bunko, 1968). I am grateful to Ronald Davidson for referring me to this text (email communication, 2000).

embryo reaches the oval-shaped (Tib. *mer mer po*) stage, the first bodily feature to develop is the central vertical circulatory channel; all other channels are then produced from this. Modeling his account after Indian tantric texts, Drapa Gyaltsen structures fetal development not by counting weeks from conception, but rather by organizing gestation into ten month-long stages named for the ten incarnations of the Indian mythical figure, Vishnu. In this terse scheme, during the first month of gestation the embryo resembles a fish, and in the second month, the five limbs protrude slightly and the fetus resembles a tortoise. In the fourth and fifth months, the limbs are defined more clearly, and by the sixth month the limbs are almost completely finished. In the ninth month the fetus desires release from the womb. Like Longchenpa, Drapa Gyaltsen crafts his embryology to personalize his presentation of religious practice, maintaining colorfully that attempting contemplative practices without a clear understanding of the body would be like trying to milk an animal by tugging at its horns.[23] The notion that complete knowledge of the body is essential to religious practice pervades tantric traditions and forms the ultimate justification for discussion of fetal growth in many treatises on Buddhist doctrine and practice.

Questioning fetal consciousness

Despite the importance of Indian authority during these centuries in Tibet, we have seen that Tibetan embryologies diverged quite radically from their Indian source texts on the sequence of fetal development. Tibetan views also differed over the issue of whether and to what extent the fetus itself is aware of the events of conception and gestation. Buddhist writers held various views on what the transmigrating consciousness experiences at the moment of conception. Some texts, such as the *Four Tantras* and Rangchung Dorje's thirteenth-century Tibetan text on yogic physiology and practice, the *Profound Inner Meaning*,[24] claim that the ordinary transmigrating being

[23] Ibid., 60.

[24] The *Profound Inner Meaning* (*zab mo nang don*), a Tibetan Buddhist text on yogic

is rendered senseless at the moment of conception, entering the womb without any awareness of the experience. Another tradition, represented by the *Entry into the Womb* scripture, maintains that the transmigrating being will be assaulted by two types of deluded mind—attachment to one parent and aversion to the other—that will in that moment determine the gender of the fetus.[25] A third tradition suggests that transmigrating beings who had performed a large number of meritorious acts in a previous lifetime will enter the womb with a more pleasurable experience than those with a smaller store of merit. Similar to this is a fourth Buddhist scriptural tradition in which the experience of conception and gestation is morally coded: ordinary people enter the womb completely unaware of the moment of conception and oblivious to the entire process of gestation; those of higher spiritual attainment are aware of the moment of entering the womb, but then are "unconscious" during gestation; those of even higher spiritual attainment are aware of the processes of conception and birth, but not that of gestation; and those of the highest spiritual attainment never lose awareness at all.[26]

These accounts debate not only the transmigrating consciousness' awareness of the very moment of conception—also contested is the issue of how aware the fetus is said to be during the ensuing process of gestation. In Vāgbhaṭa's Indian medical texts, the *Eight Branches*, the fetus experiences pleasure and pain as soon as the head is formed in the third month, and the fetus' mind (Tib. *sems*) "becomes clear" in the fifth month. In the *Entry into the Womb* scripture, alternatively, feelings are established in the sixteenth week, and in the twenty-eighth week "distorted conceptions" occur to the fetus. In the thirty-sixth week, the fetus feels unhappy about being in the womb and wishes to escape. Despite the presence of these Indic sources, however, again Tibetan authors feel free to embellish or create their descriptions of fetal growth and awareness. In the twelfth-century Tibetan Buddhist text, the *Jewel Ornament of Liberation*, by Gampopa (*sgam po pa bsod nams rin chen*, 1079–1153),[27] for example, the embryo

physiology and practice by Rangchung Dorje (*rang byung rdo rje*, 1284–1339), is a commonly cited source in the important sixteenth-century *Four Tantras* commentary by Lodro Gyalpo. See *Transmission of the Elders*, 116–17.

[25] See *Transmission of the Elders*, 117–18.

[26] This tradition is described in *Transmission of the Elders*, 119–120.

[27] This text is translated into English as *The Jewel Ornament of Liberation by Sgam.po.pa*, trans. Herbert V. Guenther, The Clear Light Series (Berkeley: Shambala Publications, 1971), 63.

is said to experience pain continually throughout gestation. In the first week, the oval-shaped, runny substance feels as if it is being boiled and fried in a pan, and the embryo's consciousness and sense organs experience intense pain. In the seventh week, the hands and feet are produced, and the embryo experiences a pain as if it is being pulled by a strong wind and spread out with a stick. The nine orifices of the body are produced in the eleventh week, and the embryo suffers as if it were an open wound being penetrated by a finger. In the thirty-seventh week, the fetus experiences the need to escape the dirty, malodorous darkness of the womb, and in the thirty-eighth week the fetus pushes toward the mouth of the womb, feeling as if it is being crushed by machinery. For Gampopa, as with other religious embryologists, the topic provides an opportunity for a religious teaching: the presentation of gestation and birth is an opportunity to demonstrate the intensity of suffering experienced in the human life. "If we are convinced of such misery," he writes, "we should be haunted by the fear of entering the womb,"[28] a sentiment meant to encourage religious activities leading ultimately to salvation from the cycle of rebirth.

Inconsistency, ignorance, or innovation?

It is clear that Tibetan religious theorists used the details of human physiology, including embryology, to articulate specialized presentations of Buddhist religious practice. We have seen that it is not merely the case that religious theorists utilized the details of embryology as symbolic correlates for aspects of religious practice, but, more radically perhaps, these writers crafted the details of embryology to fit their need for a suitable model for religious practice. The embryological issue of the sequence of fetal development, also a contentious and explicitly debated topic in Indian literature, is also a telling example of how early Tibetan scholars made interpretive choices about the range of Indic materials confronting them.

Indian and Tibetan literature offered numerous competing models of the body and its growth. The classical Āyurvedic model, oriented

[28] Ibid., 66. Guenther's translation.

toward the Hindu philosophical school of the Sāṃkhya tradition, presents a conglomeration of natural elements balanced by three humors, a physiological structure that is closely followed by the *Four Tantras* tradition in Tibetan literature. Buddhist tantric models, alternatively, emphasize the vertical flow through the body of material and energetic substances that are to be manipulated in contemplative practice. Various Indic sources for fetal development were available in Tibet from the eleventh century, if not earlier. Although the sequence of psychophysical development was carefully detailed in the *Entry into the Womb* scripture, a text considered authoritative on other matters of embryology, no subsequent Tibetan text adopted these details. Likewise, no subsequent Tibetan text repeats the sequence described in the *Eight Branches*, the early Indian medical text that served as the basis of much of Tibetan medicine. While those texts that are explicitly commentaries on the *Four Tantras* do (necessarily) agree with the sequence of development noted in the *Four Tantras*, other contemporaneous and subsequent embryologies present a completely different model. Gampopa's presentation of fetal development, for example, focused primarily on growth as an experience of sequences of pain and suffering. Lonchenpa's very detailed description, by contrast, stressed the volatile actions of the four elements and the emotions, and emphasized the originary primacy of the eyes.

When authoring embryology, in the matter of precisely how the fetus grew, although this had been canonized in scriptures, external legitimation was not required; if a Tibetan writer's presentation diverged from known authorities, no justification of this discrepancy was required. Drapa Gyaltsen in the twelfth century summarized the varying accounts of embryology known to him then, but without denouncing those alternative views—rather, he said, in effect, that such details are only part of what is to be understood from embryology.[29] Somewhat radically perhaps, the medical commentator Lodro Gyalpo admitted that in the context of embryology one need not agree with absolutely everything set forth in the Buddhist scriptures.[30] Pointing out that discrepancies occurred even in early Indian texts, the eighteenth-century Tibetan religious scholar Yangchen Gaway

[29] grags pa rgyal mtshan, 59b.
[30] *Transmission of the Elders*, 138.

Lodro likewise explained away embryological variances by saying that, in effect, it all means the same thing.[31]

If the details of sequence of fetal development are not what embryology is "really" about, however, why then did Tibetans consistently make note of these details, and how did they decide what to write? The fact is that such details—however idiosyncratically represented—were regularly included in any significant embryology. Observing this lack of allegiance to tradition, one may wonder whether the choices Tibetans made when writing about the body's development were somehow random or haphazard. Even in such matters apparently left to independent authorial discretion, I suggest to the contrary that Tibetan writers were indeed making choices—choices about whether the navel develops first, the circulatory system, or the eyes—according to some principle. What, then, might have been the operative principles in these authorial decisions? If not empirical or scriptural, perhaps they were aesthetic principles. The authorial need to fill out certain details in the literary presentation of an issue can certainly be a question of literary aesthetics. Or, as we have surely seen to be the case in some instances, prioritizing parts of the body at the embryonic level harmonized with a given writer's philosophical or contemplative system—a matter of philosophical aesthetics. Some embryological statements may therefore be assertions of aesthetically justified fact.

Tibetan medicine is a body of knowledge that provides an important perspective on the development of religious theory and practice. The study of a subject that spans both medical and religious disciplines, as does embryology, exposes broad hermeneutic issues that shape the relationship of science and religion in non-Euro-American societies, questioning the validity of superimposing our own epistemological taxonomies on classical Asian thought. The present essay suggests that, despite its prominence in Tibetan medicine, Tibetan embryological epistemology may be most fruitfully understood as a form of what we might call narrative epistemology, rather than what we Euro-Americans typically understand as scientific epistemology. In the last few decades, some sociologists and philosophers of science have challenged logical empiricism, its ontological privileging of

[31] Hopkins and Rinpoche, 62.

scientific knowledge, and the adequacy of logico-scientific rationality. In its place some have embraced an understanding of the social and historical contingency of all types of knowledge, including scientific knowledge. Consideration of the validity of logico-scientific discourse has also been shaped by an acceptance of "narrative rationality." Rather than relying on general laws, narrative knowing is called for in realms where knowledge is particular and rules emerge from individual instances of action, as in engineering, navigation, common law, meteorology, moral conduct, and clinical medicine.[32] If we consider embryological knowing in Tibetan literature as a form of narrative knowing more than a form of logico-scientific knowing, embryology appears as a method for story-telling that often describes religious taxonomies, moral or political reflections, and a variety of other social and theoretical aims. These stories are shaped and articulated by physiological concepts and use the human body to address some of the most fundamental questions of life: who we are, why we are here, and what we should do next.

[32] Hunter, "Narrative, Literature and the Clinical Exercise of Practical Reason," *Journal of Medicine and Philosophy* 21 (1996): 304.

CHAPTER THREE

GALEN REFASHIONED: GARIOPONTUS IN THE LATER MIDDLE AGES AND RENAISSANCE

Florence Eliza Glaze*

Introduction

Gariopontus of Salerno was a renowned physician and scholar active in southern Italy around the middle of the eleventh century.[1] As a medical writer, his textual activity consisted of producing one mammoth volume called the *Passionarius* or *Liber nosematon*, not a text written *de novo*, but a careful redaction of several early medieval Latin texts widely popular throughout Europe for generations.[2] By combining

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[1] Peter Damian, writing around the middle of the eleventh century, refers to Gariopontus as an older contemporary and calls him "vir videlicet honestissimus, adprime litteris eruditus ac medicus," thereby depicting him as a scholarly physician and respectable man of letters. See the edition of Peter's letter to the cleric Landulf of Milan, *Die Briefe des Petrus Damiani*, ed. Kurt Reindel, Monumenta Germaniae Historica, Teil 2 (München, 1988), Nr. 70, 318. In a contemporary letter addressed to Gariopontus by Lawrence of Amalfi, a former monk at Monte Cassino, Gariopontus is called "domnus," a title of honor repeated in numerous manuscripts of the *Passionarius*. For the text of that letter, see Francis Newton's edition of Lawrence of Amalfi's *Opera*, Monumenta Germaniae Historica: Quellen zur Geistesgeschichte des Mittelalters, Bd. 7 (Weimar, 1973), 73. A verse *explicit* survives in local South Italian manuscripts of Gariopontus' text, hailing the work as "the book of diseases of the master": "Traditur hic finis libri nosomaton herilis." This *explicit* appears first in a Beneventan manuscript written c. 1100, and implies at the least that Gariopontus was held in some esteem decades after his death.

[2] It is not at all clear that Gariopontus taught medicine at the "school" of Salerno, as was alleged by Salvatore De Renzi in his deeply flawed 5-volume *Collectio Salernitana ossia documenti inediti, e trattati di medicina appartenenti alla scuola medica salernitana* (Naples: Filiatre-Sebezio, 1852–59; reprint Bologna: Forni, 1967), which despite its deficiencies, provides the only available printing of many Salernitan and pre-Salernitan texts. Following De Renzi's lead, Piero Giacosa suggested that Gariopontus' intention in composing his *Passionarius* was to provide a schoolbook. This supposition is not supported by any hard evidence. See Giacosa, *Magistri Salernitani nondum editi* (Turin:

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