

Hand Mnemonics in Classical Chinese Medicine: Texts, Earliest Images, and Arts of Memory

Acupuncture channels and bodily viscera, wrist pulse sites and point locations along tracts, abnormal eyes and discolored tongues – these are just some of the ways Chinese medical texts depict the human body. Sometimes these images depict the whole body, other times the inside, and in special contexts as something best described as a symbolic body.¹ Of all types of illustrations of the human body found in Chinese medical texts, some of the most unique, multivalent, and as yet unexamined images are those of hands.² Chinese medical texts portray the hand as a microcosm of China's geography,³ as a diagnostic tool for determining the illnesses of infants, a site for therapeutic

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¹ Catherine Despeux, "Visual Representations of the Body in Chinese Medical and Daoist Texts from the Song to the Qing Period," *Asian Medicine: Tradition and Modernity* 1.1 (2005), pp. 10-52.

² See on-line database of images of Chinese medicine at the Wellcome Trust's Image Collection <<http://images.wellcome.ac.uk>>. See also articles on Chinese medical images in Vivienne Lo, Wang Shumin 王淑民, eds., *Xingxiang Zhongyi* 形象中醫 (Beijing: Renmin weisheng chubanshe, 2007).

³ Zhang Jiebin 張介賓, "Zhizhang jie" 指掌解, in *Leijing tu yi* 類經圖翼 (pref. 1624), repub. in *Zhang Jingyue yixue quanshu* 張景岳醫學全書 (Beijing: Zhongguo zhongyiyao chubanshe, 1999), j. 2, p. 646. This "Explanation of the Fingers and Palm" directly follows an image of the first of two hand mnemonics in this text. The second hand mnemonic is illustrated on p. 652. Both of Zhang Jiebin's hand mnemonics are examples of the same "phase energetics"

interventions,⁴ a gauge of distance between acupuncture points based on the middle section of the patient's middle finger,⁵ and as a mnemonic tool to master some of the most complex etiological doctrines of classical Chinese medicine.

This last function of the hand as a mnemonic device for physicians may well be a phenomenon peculiar to the history of Chinese medicine. Illustrations of hands in Western medical history have been largely symbolic of the prestige of the anatomist or the author, devoted to the hand's anatomy, or drawn for astrological purposes, which depending on the era and training of the physician, were also sometimes considered in medical practice.⁶ Despite scholarship on hand mnemonic systems for musical scales, basic arithmetic, and the alphabet in European examples, evidence of the hand as a mnemonic device in an early-modern European medical text has yet to be found. The situation in Chinese medical history could not be more different.

CHINESE ARTS OF MEMORY AND TU 圖 (TECHNICAL IMAGES)

By placing hand mnemonics within the intellectual and cultural history of Chinese medicine, this article initiates research on indigenous Chinese arts of memory.⁷ In *The Memory Palace of Matteo Ricci*, Jonathan

doctrines promoted at the end of the eleventh century and discussed in this paper. Because they are late-Ming examples, however, they will be discussed separately in an article on hand mnemonics and arts of memory during the Ming era.

⁴ See the section on treating children in Yang Jizhou 楊繼洲 (ca. 1522-1620), *Zhenjiu dacheng* 針灸大成 (1601; *Siku quanshu cunmu congshu* 四庫全書存目叢書 [Qi Lu shushe chubanshe, 1995]) (zibu 45) 10, pp. 298-301. The six illustrations in this text present the hand as a diagnostic aid, as a therapeutic surface for applying acupressure and moxibustion, and as gendered (left hand for male and right hand for female children).

⁵ For the early-Ming practice of using the hand as a ruler to measure distances between acupuncture points on the patient's body, see Luo Zhouchan 羅周產 (early 14th c.), "Zhongzhi tongshen cun tu" 中指同身寸圖, in Wu Kun 吳崑 (1552-1620), ed., *Yizong cuiyan* 醫宗粹言 (rpt. of 1612 edn.; Taipei: Xinwen feng chuban gongsi, 1982), j. 14, p. 1620. For Ming-era illustrations of using the hand to measure for sewing, see "yifu" 衣服 and its two diagrams "Quzhi liangcun fa tu" 屈指量寸法圖 and "Shenzhi liangcun fa tu" 伸指量寸法圖, in Wang Qi 王圻, *Sancai tu hui* 三才圖會 (1607), vol. 4, j. 1, p. 38 [p. 1522].

⁶ For an excellent exhibition catalogue with of the hand as instrument in early-modern Europe, see Claire Richter Sherman, *Writing on Hands: Memory and Knowledge in Early Modern Europe* (The Trout Gallery, distributed by the University of Washington Press, 2000), esp. on medical examples, see "Reading the Writing on Hands," pp. 64-85.

⁷ In the history of science and arts of memory in Europe, I refer here to the work of Frances A. Yates, *The Art of Memory* (London: Pimlico, 2001; first pub. 1966). See also Mary Caruthers, *The Book of Memory: A Study of Memory in Medieval Culture* (Cambridge: Cambridge U.P., 1990), and *The Craft of Thought: Meditation, Rhetoric, and the Making of Images, 400-1200* (Cambridge: Cambridge U.P., 1998). Also Lina Bolzoni, *The Gallery of Memory: Literary and Iconographic Models in the Age of the Printing Press*, trans. Jeremy Parzen (Toronto: U. Toronto P., 2001); orig. pub. as *La stanza della memoria* (Torino: Einaudi, 1995).

Spence focused on the mnemonic devices of Matteo Ricci (1552-1610), which developed from a European tradition that relied on architectural structures to aid memorization.⁸ Spence wrote nothing about Chinese methods; but then, neither did Ricci, even though both writers relayed accounts of Chinese literati who possessed prodigious memories. Benjamin Elman also discussed memory devices used by literati in his study of the Chinese civil-service examination system.⁹ Students preparing for the examinations used auditory methods of rhyming characters, four-character jingles, parallel phrases, and antithetical pairs of characters called *shudui* 屬對 as well as oral recitation techniques. Whereas Spence described the architectural and visual mnemonic techniques from the Jesuit tradition that Matteo Ricci brought with him to China, Elman discussed poetic and verbal mnemonics in Chinese academic communities. Neither explored the popular use of the hand to aid memory in either early-modern Europe or China.

In contrast to Ricci's architectural mnemonics using visualization techniques and the Chinese literati's poetic mnemonics using verbalization, one finds in anthropological and historical scholarship on China scattered references to yet a third type of corporeal and kinesthetic mnemonics that used the hands. One of the earliest discussions in western scholarship is a short article from 1907 on Chinese-derived hand divination methods among the Vietnamese to determine taboo directions for daily activities during pregnancy.¹⁰ In *La pensée chinoise*, Marcel Granet mentioned these methods in a footnote on the three ways the numbers 1-9 were written on the palm-side divisions of the fingers of the left hand.¹¹ Finally, an author of a popular book on the *Book of Changes* describes the methods that a blind fortune-teller taught him for calculating the eight *gua* 八卦 on his left hand.¹²

Anthropological research on Taoist practices in Taiwan has revealed similar functions the hands served in religious rituals for com-

⁸ Jonathan Spence, *The Memory Palace of Matteo Ricci* (New York: Penguin Books, 1984). For a more detailed account on the mnemonic techniques of Matteo Ricci and the Jesuit order, see Michael Lackner, *Das vergessene Gedächtnis: Die jesuitische mnemotechnische Abhandlung Xiguo Jifa: Übersetzung und Kommentar* (Stuttgart: F. Steiner, 1986).

⁹ Benjamin Elman, *A Cultural History of Civil Examinations in Late Imperial China* (Berkeley: U. California P., 2000), pp. 269-70, 283.

¹⁰ Commandant Bonifacy, "De certaines croyances relatives à la grossesse chez les divers groupes ethniques du Tonkin," *BEFEO* 7 (1907), pp. 107-10.

¹¹ Marcel Granet, *La Pensée chinoise* (1934; rpt. New York: Arno Press, 1975), pp. 187-88, n. 2.

¹² Alfred Huang, *The Numerology of the I Ching* (Rochester, Vt.: Inner Traditions, 2000), pp. 175-78.

municating with the spirit world as well as for healing illness.¹³ One of the manuals Master Ch'en Jung-sheng gave to Poul Anderson during his study with him in Tainan in 1979 contained a drawing of a hand mnemonic of the Twelve Earthly Branches.¹⁴ John Lagerwey described how, during a five-day ceremony in 1981, he observed Master Ch'en press specific points on the digits of his left hand following the twelve branches of this drawing while reciting an incantation.¹⁵ Recent anthropological research in Sichuan province during the mid-1990s has analyzed in even greater detail the complex uses of the left hand as a favored ritual instrument and practical mnemonic device in popular religious practices that are experiencing revival in modern China.¹⁶ The earliest drawing of this kind of finger-pressing method can be found in a Japanese Buddhist text from 1152. Michel Strickmann argued that the image represented a manual healing technique involving the ritualistic pressing of divisions of the hands to call up spirits within to assist in exorcisms of malevolent spirits without.¹⁷ Ho Peng Yoke's *Chinese Mathematical Astrology* provides an example of hand mnemonics of the Heavenly Stems and Earthly Branches for the ancient *liuren* 六壬 cosmic boards that suggests historical origins in Chinese divination as well as in Chinese religious practices.¹⁸ Technical images of writing on hands in Chinese publications from at least the eleventh century through the early-twentieth century attest that such manual arts of memory practices were as varied as they were widespread throughout the traditional

¹³ In Michael Saso, *The Teachings of Taoist Master Chuang* (New Haven: Yale U.P., 1978), see fig. 4 "The magic square envisioned on the left hand of the Taoist," p. 139, and fig. 18, p. 221, which is of the Twelve Earthly Branches and intended to help the adept make the correspondence between joints, organs, and residing spirits used in the Fa-Lu rite for exteriorizing the spirits.

¹⁴ John Lagerwey, *Taoist Ritual in Chinese Society and History* (New York: MacMillan Publishing Company, 1987), p. 17. This drawing is similar to the second one Saso described in his 1978 book.

¹⁵ See pl. 13 of a "High priest touching points in his left hand in order to activate internal energies, which he then uses to 'light the burner' during the Land of the Way," in Lagerwey *Taoist Ritual*, p. 307.

¹⁶ Wang Qiugui 王秋桂, gen. ed., Yu Yi 于一, Tong Xiangming 童祥銘, Zhang Songqin 張松琴, eds. *Zhongguo chuantong jue gang mi pu huibian* 中國傳統訣徑密譜彙編 (Taipei: Nantian shuju, 1999).

¹⁷ For an illustration of this example, see Michel Strickmann, *Chinese Magical Medicine*, ed. Bernard Faure (Stanford: Stanford U.P., 2002), pp. 151-56. First published as "Brief Note: 'The Seal of the Jungle Woman,'" *AM* 3d ser. 7.2 (1995), pp. 147-53. I thank Susan Naquin for giving me a copy of this issue of *Asia Major*.

¹⁸ Ho Peng Yoke, *Chinese Mathematical Astrology: Reaching out to the Stars*, Needham Research Institute Series 6 (London: RoutledgeCurzon, 2003), p. 137. Figure 5.5 is of the Twelve Earthly Branches on the left palm, which was used for the earth board in *liuren* divination. Ho suggests that the practitioner could use his own palms and fingers as the two cosmic boards (earth and heaven) of the *liuren* method and perform the divination hidden inside his sleeves.

domains of Chinese knowledge well beyond medicine. These textual hand diagrams were called variously *zhizhang jue* 指掌訣 (finger and palm mnemonic), *zhangjue* 掌訣 (palm mnemonic), *zhangfa* 掌法 (palm method), *shoujue* 手訣 (hand mnemonic), *zhangjue tu* (palm mnemonic diagram), *zhang tu* (palm diagram), and *shou tu* 手圖 (hand diagram).

These palm or hand diagrams exemplify the Chinese visual category *tu*, which in an edited volume of articles on the subject has been defined as a specific type of Chinese image that encoded technical knowledge and was deployed as "templates for action."¹⁹ According to Francesca Bray's introduction, the Chinese term *tu* is best understood as a functional, namely instructive, even didactic, category for instruction, not as either a morphological category such as *xiang* 象 (image or icon), intended to convey the form or structure of something, or an aesthetic category such as *hua* 畫 (picture or painting) created for pleasure and entertainment. Of the two main functions of Chinese *tu* as summarized by Bray – either symbolic mediation for organizing space and the actions of participants in rituals, or representational and technical illustrations – the medical mnemonic hand-*tu* largely fall into the latter category.²⁰ Instead of being transformative as are the former type of mediating *tu*, the hand-mnemonic *tu* are both communicative of technical medical knowledge and pedagogical; they utilize the hand to both improve understanding and assist memorization and the recall of the same knowledge. In addition to the poetic and verbal mnemonics of Elman's civil-service examinees, the functional type of representational Chinese *tu* provides an illuminating entry into the history of the arts of memory in Chinese culture. Full coverage of just the hand *tu* found in medical texts, however, not only would have to cover both types of mediating transformative and representational, communicative *tu* but would also require a book. This article therefore introduces the mnemonic hand *tu* in classical Chinese medicine; it focuses on just one of three known types of medical mnemonics, and analyzes only the two earliest known of many medical hand-mnemonics. These are both taken from a medical book completed in 1099 whose author was a physician at the Northern Song court; the earliest extant edition was printed in 1339. First, however, it will be helpful to discuss the basic structure and mechanics, as well as history, of the mnemonic process embodied in such medical *tu*.

¹⁹ Francesca Bray, Vera Dorofeeva-Lichtmann, Georges Métailié, eds., *Graphics and Text in the Production of Technical Knowledge in China: The Warp and the Weft*, Sinica Leidensia 79 (Leiden: Brill, 2007).

²⁰ Bray, "Introduction," *Graphics and Text*, pp. 1-4.

What Chinese Medical Hand Mnemonics Summarized

Hand mnemonics in classical Chinese medicine are found in three medical disciplines where complex calculations were required to make a diagnosis and determine a treatment: acupuncture, drug formulas, and numerological epidemiology. In acupuncture, hand mnemonics were used in a subdiscipline called chrono-acupuncture. Based on a numerological system termed "midnight-noon, ebb-flow" (*zi wu liu zhu* 子午流注), chrono-acupuncture helped physicians determine the appropriate time to needle acu-points and thus reestablish harmonious flow of *qi* in the patient.²¹ To determine the appropriate use of formulas, the Eastern Han official and physician Zhang Ji 張機 (150–219 AD) established diagnostic guidelines in his *Treatise of Cold Damage and Miscellaneous Disorders* (*Shanghan zhabing lun* 傷寒雜病論; ca. 196–219 AD) according to six types of patterns, or syndromes, called the six warps (*liujing* 六經). Later physicians developed hand mnemonics to help recall the appropriate Cold Damage formula for each major type of six-warp pattern of illnesses.²² In the *Inner Canon* tradition, to assist their diagnoses and prognoses, physicians also relied on a doctrine called *wuyun liuqi* 五運六氣 (Five Circulatory Phases and Six Climatic Figurations of *qi*). This doctrine relating the Five Phases with the six external climatic configurations of *qi* was often abbreviated in Chinese to simply *yunqi* 運氣 (literally, "phases and *qi*"), and succinctly in the English rendering "phase energetics."²³

The doctrines of phase energetics were first outlined in seven chapters of the *Huangdi neijing: suwen* 黃帝內經素問 (66–71, and 74) that have for many centuries been considered later interpolations from the eighth century. Based on the calendrical breakdown of a sexage-

²¹ For evidence of the present-day deployment of hand mnemonics for these doctrines in Taiwan, see Hua Mingyang 清明鳴, *Zi wu liu zhu zhi yanjiu* 子午流注之研究 (Taipei: Qiye shuju, 1983). There are at least two popularized interpretations of this practice in English. Neither source, however, explicitly explains how to use the hand as a mnemonic device for this practice. Liu Bingquan, comp., *Optimum Time for Acupuncture: A Collection of Traditional Chinese Chronotherapeutics*, trans. Wang Qiliang (Jinan: Shandong Science and Technology Press, 1988). Liu Zheng-Cai et al., *A Study of Daoist Acupuncture & Moxibustion* (Boulder: Blue Poppy Press, 1999).

²² The earliest example of the use of hand mnemonics to remember Cold Damage doctrines I have found is in Ma Zongsu 馬宗素 (fl. 13th c.), *Shanghan qian fa* 傷寒鈔法 (1234; rpt. in *Xueshi yi'an ershisi zhong* 薛氏醫案二十四種 [Wanli reign 1573–1619]), in the *Ming Qing zhongyi mingzhu congan* 明清中醫名著叢刊 series (Beijing: Zhongguo zhongyiyao chubanshe, 1997), pp. 301–7. For modern illustration and explanation, see Yan Liang 鄒良, *Renshen xiao tiandi* 人身小天地 (Taipei: Ming Wen Book Co., Ltd., 1993), pp. 219–24.

²³ For the first and most comprehensive treatment of these theories in English, see chap. 2, "Standards of Value for Phenomena of Macrocosmic Dimensions: Phase Energetics," in Manfred Porkert, *Theoretical Foundations of Chinese Medicine: Systems of Correspondence* (Cambridge, Mass.: The M.I.T. Press, 1974), pp. 55–106.

nary cycle into five periods of twelve years each ($5 \times 12 = 60$), phase energetics formalized in medical practice the relationship between the macroclimate of the cosmos and the microclimate of the human body.²⁴ This doctrine did not gain prominence among scholars and elite physicians, however, until the end of the eleventh century, that is, during the Northern Song dynasty (960–1126).²⁵ Significantly, the two earliest known medical hand mnemonics that summarized the phase energetics doctrine were published during this period, and came from the pen of an eleventh-century physician working in the new Northern Song Imperial Medical Bureau.

COSMOLOGICAL MEDICINE AND GOVERNMENT PATRONAGE OF MEDICINE IN THE NORTHERN SONG

We come now to our earliest known diagrams of medical hand mnemonics, which are preserved in a text that the Northern Song physician Liu Wenshu 劉溫舒 (late-eleventh century) wrote while he was in service to the imperial court as the vice-rector of studies in the Imperial Bureau of Medicine. Although we do not know exactly the years of his appointment, we know that in 1099 he presented to the court a medical text entitled *Suwen rushi yunqi lun'ao* 素問入式運氣論奧 (*On the Arcana of the Patterns of the [Five] Cyclical Phases and [Six Climatic] qi in the Basic Questions [of the Inner Canon of the Yellow Emperor]*).²⁶ The text marked the apex of influence of the new cosmological doctrine of five circulatory phases and six climatic *qi*. Even though this doctrine had been developed since the eighth century in the interpolated chapters of the *Inner Canon: Basic Questions* (mentioned above), it had not become influential among elite physicians until the eleventh century.²⁷ The rise of the cosmological medicine Liu Wenshu's text exemplifies is inextricably linked to the government's expansion of imperial medical institutions,

²⁴ For the earliest graphic depictions of the sexagenary cycle, which clearly influenced the formal form of mnemonic hand *tu* for phase energetics, see Marc Kalinowski, "Time, Space and Orientation: Figurative Representations of the Sexagenary Cycle in Ancient and Medieval China," in Bray et al. eds., *Graphics and Text*, pp. 137–68.

²⁵ For evidence supporting this argument, see Catherine Despeux, "The System of Five Circulatory Phases and the Six Seasonal Influences (*wuyun liuqi*): A Source of Innovation in Medicine under the Song," in Elisabeth Hsu, ed., *Innovation in Chinese Medicine*, Needham Research Institute Studies 3 (Cambridge: Cambridge U.P., 2001), pp. 121–65.

²⁶ See the complete edition of *Suwen rushi yunqi lun'ao* in *Daozang* 1022 (cc 664).

²⁷ For an excellent analysis of the content of these seven chapters, see Fang Yaozhong 方藥中 and Xu Jiasong 許家松, *Huangdi neijing suwen: yunqi qipian jiangjie* 黃帝內經素問 運氣七篇講解 (Beijing: Renmin weisheng chubanshe, 1984). These authors, however, did not discuss the historical context or assimilation of these new chapters as did Despeux, "System of Five Circulatory Phases."

promotion of classical medical texts through government sponsored publications, and state supported standardization of medical concepts and practices.²⁸ A new form of medical activism toward transforming healing practices in the south, thereby bringing southern populations under Song governance, also developed during this period.²⁹

Forming a system of calculations, these phase-energetics doctrines became more widely known among literate Chinese physicians only after the early-twelfth century, when they received state sanction for the first time through one of the medical publications sponsored by emperor Huizong 徽宗 (r. 1101–1126), namely, the *Zhenghe sheng ji zonglu* 政和聖濟總錄 (*Medical Encyclopedia: A Sagely Benefaction of the Zhenghe Reign Period*) of 1117. The first two chapters are devoted to phase-energetics doctrines. They were promoted as doctrines used to predict years of greater prevalence of epidemics and determine the pathogenic climatic factor believed to have caused them. They also differentiated aberrant from normal changes in the pulses due to seasonal shifts, listed the dominant pathogenic climatic factor implicated in illnesses, and, an innovation for the *Medical Encyclopedia*, aligned treatments according to both the Chinese sixty-year calendrical cycle and the six-period annual cycle.³⁰ Although Huizong did not publish the actual text on phase-energetics that Liu Wenshu presented to his half-brother, the emperor Zhezong 哲宗 (r. 1085–1100) nearly two decades earlier, Huizong's *Medical Encyclopedia* gave formal state sanction to the same macro-microcosmic doctrines of phase energetics that Liu Wenshu brought to the attention of the imperial family.³¹ Both the individual Liu Wenshu text and the imperial *Medical Encyclopedia* were products of the broader

trend of standardization, systematization, and government support of medical institutions, publications, and policies that were characteristic of the Northern Song since the first emperor, Taizu 太祖 (r. 960–976), in particular as carried out through the New Policies program of Wang Anshi 王安石 (1021–86), which began in 1069 and was toppled by opposition in 1086 for some years. Imperial medical patronage peaked in the final Northern Song reign, that of Huizong.³² Liu Wenshu's treatise marked the peak of this medical system's reputation, crystallized the most comprehensive treatment of its various components, and, I argue, set the stage for the later integration of phase-energetics doctrines into Huizong's imperially sponsored *Medical Encyclopedia*.³³

CHINESE ARTS OF MEMORY AND THE KINESTHETICS OF HAND MNEMONICS

Liu's extensive text contains seventy-two diagrams spread throughout its thirty chapters. The two illustrations of the left hand were prominently placed at the beginning, directly after two circle-diagrams (the first is depicted in figure 8 and the second in figure 9, which will be discussed later) and before two circle-diagrams depicting the *shun* 順 (correct flow), or *sheng* 生 (mutual production) sequence, and *ni* 逆 (reverse flow), or *ke* 剋 (mutual conquest) sequence of the Five Phases.³⁴ Circle diagrams were a conventional method in Song-era publications comparable to the convention of modern-day pie charts, but they summarized complex conceptual and numerological relationships rather than quantitative relationships based on percentages.³⁵ In the mutual-production sequence of the Five Phases, for instance, the phases produce or engender each other in the following order: Wood creates Fire, Fire produces Earth, out of Earth Metal is formed, Metal engenders Water. (See figure 1, left side, top circle.) The mutual-conquest sequence, on

²⁸ See various articles on Northern Song medical transformations by Asaf Goldschmidt: on medical standardization, "Changing Standards: Tracing Changes in Acu-moxa Therapy during the Transition from the Tang to the Song Dynasties," *East Asian Science, Technology, and Medicine* 18 (2001), pp. 75–111; on medical systematization, "The Song Discontinuity: Rapid Innovation in Northern Song Dynasty Medicine," *Asian Medicine: Tradition and Modernity* 1.1 (2005), pp. 53–91; and medical institutionalization, "Commercializing Medicine or Benefiting the People—The First Public Pharmacy in China," *Science in Context*, forthcoming.

²⁹ For examples of Northern Song medical activism, see T. J. Hinrichs, "The Medical Transforming of Governance and Southern Customs in Song Dynasty China (960–1279 C.E.)," Ph.D. diss. (Harvard University, 2003). For a complete list of Northern Song medical publications, see her appendix 2, "Government produced medical texts through the Yuan period," pp. 243–46.

³⁰ For an explanation of these theories and their accompanying charts, see "The Doctrine of the Five Periods and the Six Qi in the *Huang Di nei jing su wen*" by Paul Unschuld, assisted by Zheng Jinsheng and Hermann Tessenow, an appendix in Paul U. Unschuld, *Huang Di nei jing su wen: Nature, Knowledge, Imagery in an Ancient Chinese Medical Text* (Berkeley: U. California P., 2003), pp. 387–488.

³¹ For more details on Huizong, the *Medical Encyclopedia*, and the phase energetics doctrine, see Goldschmidt, "Song Discontinuity," pp. 82–83.

³² For Huizong's role in this peak of Northern Song patronage of all aspects of medicine, see Asaf Moshe Goldschmidt, "The Transformations of Chinese Medicine During the Northern Song Dynasty (A.D. 960–1127): The Integration of Three Past Medical Approaches into a Comprehensive Medical System Following a Wave of Epidemics," Ph.D. diss. (University of Pennsylvania, 1999). See also his "Huizong's Impact on Medicine," in Patricia Ebrey and Maggie Bickford, eds., *Huizong and the Culture of Late Northern Song* (Cambridge, Mass.: Harvard U.P., 2006), pp. 275–323.

³³ For a paragraph on the significance of this treatise with respect to the development of *wuyun liugi* doctrine, see Despeux, "System of Five Circulatory Phases," pp. 132–33.

³⁴ The processes depicted were called one thing in the titles of the diagrams and another in the diagrams themselves. For example, *shun* is in the title but *sheng* is in the top diagram; *ni* is also in the title but *ke* is in the bottom diagram.

³⁵ For this insight on Song *tu*, see Despeux, "System of Five Circulatory Phases," p. 132.

the contrary, is based on an adversarial controlling relationship among the phases: Wood is stronger than Earth, Earth can be used to control Water, Water puts out Fire, Fire can melt Metal, Metal is stronger than Wood. (See figure 1, left side, bottom circle.) Resembling the concentric circles of a geomancer's compass to determine cosmological alignment in space for buildings, circle-diagrams visualized a cyclical conception of transformations – mutually producing and mutually controlling – and of time. The logic of a mnemonic hand diagram is that of a circular or square diagram transferred onto the palm side of the fingers.

Liu Wenshu's first diagram of the left hand, for example, has three layers of concepts inscribed on the inside of the three middle fingers. Going from inside out, they are listed as the following: the Ten Heavenly Stems, two sets of the Five Phases in their mutual production sequence, and alternating yin and yang. (See table 1, figure 2.) The reader begins with the first heavenly stem, called *jia* (see table 2 for a convenient listing of these stem terms), located on the bottom crease of the ring finger, and continues clockwise. First across the creases at the bases of the middle finger for *yi* and index finger for *bing*, then up the index finger using the two creases for *ding* and *wu*, then across the tips of the three longest fingers for *ji*, *geng*, and *xin*. Finally, the reader moves down the ring finger where *ren* and *gui* are located on the two upper and middle creases, and returns to *jia* at the base of the ring finger.

In addition to this clockwise arrangement of the Ten Heavenly Stems, the writing on the hand adds another layer of complexity. The physician reading this hand diagram (see figure 2) would know that the Ten Heavenly Stems are given the ordinal values of one through ten and that the odd numbers are designated yang and the even numbers are designated yin (table 2). Interpretation depends on the tacit knowledge of the observer. The physician would also learn from the image that the characters are grouped together to form five yin-yang pairs in the following order: 1 with 6, 2 with 7, 3 with 8, 4 with 9, and 5 with 10. Liu Wenshu's diagram informs the physician that the Ten Heavenly Stems are associated with the five circulatory phases of Heaven, which divide the yearly cycle into five periods of seventy-three days. Each one of these five periods is further ruled by its corresponding phase and follow the mutual-production sequence – Earth, Metal, Water, Wood, Fire. The *jia-1/ji-6* yin-yang pair of Heavenly Stems whose components are diagonally across from each other from the lower-right to the upper-left side of the fingers corresponds to the phase of Earth. According to the Five Phases concept, Earth stimulates the formation of moisture during the end of summer. The next yin-yang pair, *yi-2/*

geng-7, which comprises the two stems directly across from each other on the lower and top end of the middle finger, corresponds to the Metal phase that engenders dryness during the autumn. The *bing-3/xin-8* pair, which comprises the two stems diagonally across from each other from the lower-left to the upper-right side of the fingers, corresponds to the Water phase that produces cold during the winter. The *ding-4/ren-9* pair, which comprises the two stems horizontally across from each other from lower-left side to the upper-right side of the middle of the index and little fingers, corresponds to the phase of Wood thought to produce the winds ushering in spring. The *wu-5/gui-10* pair, the stems horizontally across from each other from the upper-left to the lower-right side of the middle of the index and little fingers, corresponds to the phase of Fire believed to ignite the heat of summer.

The physician would also have within his mind a list of disorders associated with the dominant circulatory phase of these five periods and each one of these yin-yang pairs of Heavenly Stems. The Earth of the *jia-ji* year of the sixty-year cycle as well as that period of any given year, for instance, would be associated with disorders of the spleen, the organ system that corresponds to the Earth phase. The Fire phase dominant during the *wu-gui* period in the sixty-year cycle, similarly would cause more heat-associated illnesses as well as illnesses of the heart corresponding to the Fire phase. This first hand mnemonic presents a straightforward example of the hand used to remember the Ten Heavenly Stems, their Five Phases associations, and their yin-yang designations. The second hand mnemonic in Liu Wenshu's treatise is not only more complex, it opens up the question of what Liu Wenshu could assume from his potential readers and what were the possible sources for his enigmatic hands?

POSSIBLE SOURCES OF INSPIRATION AND INFLUENCE

The second diagram of the left hand in Liu Wenshu's text is titled "The Mnemonic of the Twelve Branches that Govern Heaven," yet curiously the characters for the Twelve Earthly Branches are nowhere to be found on this image. Instead the two-character terms for the six climatic *qi* are clearly indicated on the inside of the middle and pointer fingers. (See figure 3.) A later image of the same hand mnemonic taken from a modern photo-reprint of the *Daozang* (*Daoist Canon*) of 1444-45 solves the issue of the where the Earthly Branches were located on the palm. (See figure 4; tables 3, 4.)

Yet the absence of the characters for the Earthly Branches in the image from the 1339 edition of Liu Wenshu's *Suwen rushi yunqi lun'ao* still needs explanation.³⁶ The location of the Twelve Earthly Branches on the left palm appears to have been such common knowledge among the literate scholars and physicians for whom the book was intended that it was unnecessary to write them on the image. Evidence from one of the oldest encyclopedias of the Southern Song (1127–1278), titled *Shilin guangji* 事林廣記 (*Broad-ranging Record on Many Matters*) supports this argument. Compiled by the twelfth-century scholar Chen Yuanjing 陳元靚 (1137–1181), it contains diagrams of a wide range of subjects, including constellations, territorial and city maps, climatic and calendrical change, genealogical systems, and even Chinese chess and other games. *Shilin guangji*, significantly enough, has an essay on “Zhangjue” 掌訣 (“Palm Mnemonics”) that introduces a section on fate calculation techniques using the hand. Comparable to the *Daozang* edition of the second of Liu Wenshu's two hand diagrams, the Twelve Branches trace a circumference in the same locations around the palm-side of the fingers of the left hand. (See table 3; compare figure 4 with figure 5.)

Starting at the base of the ring finger with *zi*, the fortune teller moves clockwise around the four central fingers and ends at the base of the little finger with *hai*. Just beneath this *Shilin guangji* hand diagram, a square-grid diagram correlates the Earthly Branches with the twelve animals of the Chinese zodiac. (See table 5.) The zodiac designations for the Twelve Earthly Branches are arranged to be read top to bottom and left to right but the hand mnemonic directly above suggests the fortune teller would recall them according to a clockwise arrangement in the palm of his left hand.

The following page of the encyclopedia provides further evidence that this was the case. Although the Twelve Earthly Branches are written within a square instead of on the fingers of the palm, the arrangement exactly parallels the one on the preceding hand mnemonic of the Twelve Branches. Instead of the zodiac animals, this example associates each branch with one of twelve stars. The explanation above shows the reader how to calculate the *taiyin xing* 太陰星 (Great Yin Star) for any given person according to their birth date. Several important points may be made here: the Earthly Branches form the basis of a duodecimal system of calculation in both examples; the branches are paired with several orders of correlations – the twelve zodiac animals, in the first

³⁶ The illustrations of the hand mnemonics in the SKQS edn. of *Suwen rushi yunqi lun'ao* follow the 1339 edn.

diagram, and the twelve stars, in the second one; and a square-shaped “donut” represented the same order of Earthly Branches as were written on the fingers of the previous hand diagrams. Square-grid diagrams of the Earthly Branches like the one in *Shilin guangji* represented in the abstract the four fingers of the left hand. (Compare figures 5 and 6.)

The Hand or the Square?

This correspondence between hand and square diagrams of the Earthly Branches raises an intriguing question of what came first as mnemonic device, the practitioner's hand or the square-grid diagrams? Although the use of the hand as a mnemonic tool predates Liu Wenshu's 1099 publication, he does not inform the reader about the textual or practical origin of the two hand mnemonics he used to promote the new “phase energetics” doctrines. Nor do we know where he first saw characters written on a drawing of a hand. The earliest example of a diagram of a hand mnemonic I have been able to find is in a Buddhist manuscript found in the hidden library at the Mogao Caves of Dunhuang in Xinjiang province. Attributed to the eighth century, this drawing of a pair of hands with the ten Buddhist virtues and five Buddhist elements written along the finger tips was most likely used during the late-eighth century when esoteric Buddhist cults from India spread along the Silk Road and found adherents among the Chinese.³⁷ Like Buddhist mudras, or symbolic hand gestures, the writing on this pair of hands was imbued with religious significance and placed spiritual practice into the hands of the acolyte.

An essentially esoteric religious practice of hand mnemonics in Buddhist communities from at least the eighth century appears to have preceded their textual representation in Liu Wenshu's *Suwen rushi lunqi lun'ao* of the late-eleventh century and the twelfth-century *Shilin guangji* encyclopedia. Furthermore, the two examples from *Shilin guangji* – the mnemonic hand diagram and the square grid diagram – suggest that Liu Wenshu learned a comparable hand calculation method based on the Earthly Branches from an earlier illustrated encyclopedia or almanac similar to Chen Yuanjing's later work. It is also possible that he learned to calculate on his hands from his colleagues or a mentor

³⁷ M. Aurel Stein, *Serindia: Detailed Report of Explorations in Central Asia and Westernmost China* (Oxford: Clarendon Press, 1921). For drawing, see vol. 4, pl. XCIX (ch. 00153); for text describing the drawing, see vol. 2, p. 968b. For another Buddhist example dating to 1198, see Takakusu Junjirō and Ono Gemmyō, eds., *Taishō (shinshū) daizōkyō zuzō* 大正新修大藏經圖像 (1912–26) “Shiba Daosi ji yintu” 十八道私記印圖, vol. 8, p. 31.

in the esoteric divination practices fashionable during his time. The question about the precedence of the hand or the square grid *tu* thus remains unanswered, although the close relationship between the two in Chinese history is now conclusive.

ANALYSIS OF THE EARTHLY BRANCHES HAND MNEMONIC

Instead of the twelve animals of the zodiac corresponding to twelve consecutive years, or the twelve yin stars representing constellations in a year, in Liu Wenshu's second hand diagram the Six Steps (*liubu* 六步) of Qi divide the year into the six periods each of sixty days. (See tables 3 and 4.) The first earthly branch *zi*, like the first heavenly stem *jia* in his first hand diagram, begins on the bottom crease at the base of the ring finger. (See figure 2, table 1, and figure 4, table 3.) The physician again reads clockwise along the base of the next two fingers, then up the length of the index finger, then across the tips of the fingers, ending down the length of the little finger. As was the case for the Ten Heavenly Stems, the physician would already know that the Twelve Earthly Branches were organized according to a specific sequence and similar logic. Clearly, the 1339 edition's version of the Earthly Branches hand mnemonic assumed prior knowledge of the location of the twelve branches on the hand. The first circle-diagram that opens Liu Wenshu's book, however, provided a key to the levels of association stemming out from the core six phrases indicating the steps of *qi* – *shaoyin*, *taiyin*, *shaoyang*, *yangming*, *taiyang*, and *jueyin* – that perhaps he could not assume was common knowledge. (See figure 8.)

Liu Wenshu's opening circle-diagram summarized the multiple layers of the phase energetics doctrine and had the appropriate title "Wuyun liuqi shuyao zhi tu" 五運六氣樞要之圖 ("Diagram of the Pivot of the Five Circulatory Phases and the Six Climatic *qi*"). This image provided the key to what the second Earthly Branches (not the first Heavenly Stems) hand mnemonic was intended to recall from memory. It is composed of seven concentric rings that depict the seasonal divisions and phenomena of a year. The seven rings represent doctrines that are arranged in a sequence from the most tangible six climatic *qi* of the seasons in the innermost circle starting at 6 o'clock – Dampness, Fire, Dryness, Cold, Wind, and Heat – to the most abstract cycle of the Twelve Earthly Branches on the outer edge of the final ring starting at 5 o'clock with *zi*, the first earthly branch. Between these two ends, one finds in each of the five successive bands moving outward Chinese characters that represent different aspects of the phase energetics doctrines.

The first ring after the innermost circle indicates the correspondence between each of the "Six Steps of Qi" of roughly sixty days and the corresponding pair of Earthly Branches.³⁸ The first half of the year of 180 days was associated with heaven and the yang configurations of *qi* – called 少陽 *shaoyang* (Lesser Yang), 陽明 *yangming* (Yang Brightness), and 太陽 *taiyang* (Greater Yang). The second half of the year of 180 days was associated with earth and the yin configurations of *qi* – called 厥陰 *jueyin* (Attenuated Yin), 少陰 *shaoyin* (Lesser Yin), and 太陰 *taiyin* (Greater Yin). These six steps of seasonal *qi* are what Liu Wenshu wrote "shorthand" onto the three divisions of the index and middle fingers. The reader would have been expected to know that the Earthly Branches are given the numerical values 1–12 (with the same designations of yang for odd numbers and yin for even as with the Heavenly Stems) and that they are grouped together to form six yin-yang pairs. These correspondences are visually represented by having each pair of branches split on either side of the stage of *qi* with which they are linked on the circle diagram. Their month designations, given in other diagrams, are assumed here.³⁹ (See table 6.)

The second ring from the center refers to the "govern-heaven and in-the-source" (*sitian zaiquan* 司天在泉) aspect of the phase-energetics doctrine. This concept linked changes in seasonal *qi* to normal and abnormal pulses. Normal pulses changed according to either the three periods governed by the yang forces of Heaven or three periods ruled by the yin forces of Earth. The Govern-heaven (*sitian*) *qi* division located in the 10 to 12 o'clock pie segment of the circle and In-the-source (*zaiquan*) *qi* division located in the 4 to 6 o'clock segment are opposite from each other visually reinforcing that the former is Yang to the latter's Yin.⁴⁰

The third ring returns to the Six Steps of Qi but clarifies their order starting with *chu zhi qi* 初之氣 (Initial *qi*) from the 6 to 8 o'clock segment and going clockwise to second *qi*, third *qi*, fourth *qi*, fifth *qi*, and *zhong zhi qi* 終之氣 (final *qi*), which ends at the 4 to 6 o'clock segment of the circle. The fourth ring then lists which one of the six circulatory *qi* and Five Phases are the *zhu qi* 主氣 (host *qi*) for that period. The host *qi* follow the mutual production sequence of the Five Phases clearly

³⁸ See the appendix 3.3 "The Host Qi and the Six Steps," in Unschuld, *Huang Di nei jing su wen*, pp. 417–20.

³⁹ See also diagrams 11, 12, and table 7, in *ibid.*, pp. 422–24.

⁴⁰ For a clear explanation in English of this aspect of the doctrine, see 3.6 "The Qi Controlling Heaven and Qi at the Fountain," in *ibid.*, pp. 424–36.

depicted in the first hand mnemonic and circle diagram directly following it. Additionally, in order for the Five Phases to match up with the six *qi*, Fire was further divided into Ruling Fire (*jun huo* 君火) and Ministerial Fire (*xiang huo* 相火). The initial *qi* period starting with the "Establishment of Spring" fortnight, for example, is governed by Attenuated Yin, the climatic configuration Wind, the Wood phase, and is the season of winds. (See table 7, first column.)

The fifth ring indicates the order of the twenty-four fortnightly periods that divide the Chinese agrarian calendar into fifteen-day periods starting with the "Establishment of spring" (*li chun* 立春) and ending at the "Great cold" (*da han* 大寒) period listed at the 6 o'clock position.⁴¹ The Twelve Earthly Branches dot the outer ring with the first earthly branch *zi* aligned with Winter Solstice (*dongzhi* 冬至) at 5 o'clock and at its opposite the seventh earthly branch *Wu* aligned with Summer Solstice (*xiazhi* 夏至) at 11 o'clock. Although Liu Wenshu's "Twelve Earthly Branches" hand mnemonic only wrote out on the hand the Six Steps of Qi found in the innermost ring of this circle diagram of the sexagenary cycle, these Six Steps of Qi were clearly intended to jog memory of more than just the Twelve Earthly Branches.

Liu Wenshu titled the second circle in his book "Liushi nian jiyun tu" 六十年紀運圖 ("Diagram of the Sexagenary Periods of Circulation") and used it to further develop the concepts he illustrated in the first circle-diagram (figure 9). The circle shows how to combine the Ten Heavenly Stems with the Twelve Earthly Branches to form the sequence of sixty pairs in the sexagenary cycle already well known to Chinese and scholars of Chinese history and culture.

I focus instead on the circle diagram, or *tu*, here as a technical image intended to convey specific knowledge and used simultaneously to reinforce retention through visual representation. Furthermore this image must be understood as the completion of the shorthand written on the two hand diagrams that directly followed it.

The six pairs of Earthly Branches are listed horizontally around the rim of the inner band. Alternating Heavenly Stems are listed vertically in the six subsections of the outermost band in the second of three rows from the right line. The three rows of the outermost band list the following categories:

⁴¹ For table of English translation of the 24 fortnightly periods, see Joseph Needham, *Science and Civilisation in China* (Cambridge U.P., 1959) 3, p. 405. Needham explains that these periods correspond to the 15 degree motion of the sun in longitude on the ecliptic and are an average of 15.218 days.

1. the Five Phases, each one aligned with the heavenly stem to its left, but in contrast to the Heavenly Stems hand mnemonic, they are written in the mutual conquest sequence (Earth, Water, Fire, Metal, Wood);
2. five of the Heavenly Stems (the first five followed by the second five and repeated three times); and
3. the five possible celestial predictions of convergence or divergence: *shunhua* 順化 (Sequential Change), *buhe* 不和 (Inharmonious), *tianfu* 天符 (Heavenly Convergence), *tianli* 天利 (Heavenly Benefit), *xiaoni* 小逆 (Minor Retreat).

The physician would match the branch and stem of any given year to the dominating phase and the celestial prediction for that year. These two circle-diagrams summarize the conceptual foundation upon which numerological epidemiology was developed through the phase-energetics doctrines of classical Chinese medicine from the eleventh century onward.⁴²

Moving from the sexagenary cycle to the yearly cycle, the next circle-diagram (figure 10), specifies each of the six steps listed in the inner circle going clockwise from 8 o'clock – Attenuated Yin, Minor Yin, Minor Yang, Major Yin, Yang Brilliance, and Major Yang. The Six Steps of Qi – and not the five circulatory phases – govern the range of climatic conditions affecting humans over the course of a year (the Govern-heaven *qi*, mentioned above), but they have multiple layers of meaning depending on the period of the year and the function of the climatic *qi* as a host *qi* or visitor *qi* during the year indicated by the months in the second ring.⁴³ Depending on whether the Govern-heaven *qi* are excessive or insufficient, they cause illness or, in the worst years, widespread epidemics. These "six steps" of the annual cycle were each further divided into four periods of fifteen days, totally twenty-four distinct "seasonal nodes" (*shijie* 時節; fifth outermost band in figure 8 and the outermost band in circle diagram in figure 10).

THE CONTOURS OF THE PALM AND THE LOGIC OF THE EARTHLY BRANCHES HAND MNEMONIC

To assist memorization of these layers of correspondence, Liu Wenshu inscribed the "six steps" within the circumference of the Twelve Earthly Branches and projected these two essential features of the circle

⁴² See appendix 4, "The Five Periods, the Six Qi, and the Climatic Changes," in Unschuld, *Huang Di nei jing su wen*, pp. 436–41.

⁴³ See Unschuld's explanation in appendix 3, "The Six Qi," *ibid.*, pp. 414–33.

called the “Zhuqi zhi tu” 主氣之圖 (“Diagram of Host *qi*”) directly onto the palm of the left hand. (Compare figures 11 and 12.)

Liu Wenshu’s second “Earthy Branches” hand mnemonic clearly summarized this circle-diagram, but because of the natural constraints of the lines of the left palm the characters are mapped out differently. The relationships between the paired Earthly Branches are visualized across the circle and matched with one of the six steps linked with just one branch, both moving clockwise. For example, *zi-wu* (1-7, winter and summer solstice, 11th and 5th month) are across from each other at 6 o’clock and 12 o’clock in the circle-diagram. They both correspond to *Shaoyin* “Lesser Yin” at 10 o’clock, however, there is no clear visual cue linking them together. These correspondences are indicated on the left palm, however, in a slightly different way that takes advantage of the palm’s contours and makes the connections physically clearer in contrast to the textual limitations of the circle’s concentric rings.

The hand diagram follows the same principle of diagonal alignment as in the circle diagram: touch *zi* on the base crease of the ring finger, then touch *wu* on the tip of the middle finger, and notice the diagonal that *zi-wu* (1-7) forms. Similarly, *chou-wei* (2-8) are diagonally opposite from each other on the hand: touch *chou* at the base crease of the middle finger and *wei* on the tip of the ring finger. Taken together you can imagine the “diagonal lines” formed by *zi-wu* and *chou-wei* as crisscrossing each other vertically. A comparable horizontal crisscrossing is created by the “diagonal lines” formed by *mao-you* (4-10) from second crease of pointer to third crease of pinky finger and *chen-xu* (5-11) from third crease of pointer to second crease of pinky. Now for the final crisscrossing diagonals that *yin-shen* (3-9) and *si-hai* (6-12) form, touch the base of the pointer at the *yin* location and the tip of the pinky finger at the *shen* location; then touch the tip of the pointer at the *si* location and the base of the pinky at the *hai* location. (See figure 12.)

In this hand mnemonic, the correspondence between the Earthly Branches and the Six Steps of Qi are more closely linked to the logic of these diagonal alignments than in the circle diagram. The text accompanying the hand mnemonic instructs the practitioner to begin with *jueyin*, at the central division of the middle finger, and count clockwise to *shaoyin*, just below at the base of the middle finger, then to *taiyin*, *shaoyang* and *yangming* up the three divisions of the index finger, ending with *taiyang* at the tip of the middle finger. The paired Earthly Branches associated with *jueyin* (middle space of middle finger) is *si-hai* (6-12), which is located on the diagonal line from *si* at the upper left tip of the

pointer finger to *hai* at the lower-right second crease of the ring finger. Similarly, *yin-shen* (3-9) form a diagonal from lower-left to upper-right hand and the *shaoyang* “Lesser Yang” they are both associated with is located in the middle of the pointer finger, roughly on a comparable diagonal. The diagonal alignment argument also works for two other pairs of stems and their corresponding step of *qi*, but slightly differently. *Shaoyin* is directly diagonal and to the left of the first branch *zi* (located at the bottom segment of middle finger) followed by *taiyin* which is directly diagonal and to the left of the second branch *chou* (located at the bottom segment of pointer finger), facilitating their correspondence by physical proximity on the palm. Only the two pairs of stems that crisscross horizontally do not align on a diagonal with their corresponding steps of *qi*: *mao-you* (4-10) with *yangming* (tip of pointer) and *chen-xu* (5-11) with *taiyang* (tip of middle finger). (Compare table 6 and figure 12.) But with the patterns of diagonal alignment and physical proximity within the palm assisting memory of the other four pairs and their corresponding steps of *qi*, the practitioner could more likely than not fill in the blanks.

MEDICAL HAND MNEMONICS AND NORTHERN SONG INTELLECTUAL TRANSFORMATIONS

The first hand diagram in Liu Wenshu’s treatise represents the five circulatory phases of Heaven and the Ten Heavenly Stem divisions that were theoretically aligned in an ideal year. The second hand diagram illustrated the corresponding six climatic *qi* of earth and the Twelve Earthly Branch divisions of any given year that actually occurred. In these two earliest examples of medical hand mnemonics, Liu summarized the most important dimensions of the doctrine of five circulatory phases and of six climatic *qi* that had become fashionable among medical and scholarly bureaucrats in the Northern Song government. Aspects of this doctrine were then summarized in Chinese by the following three short elliptical phrases:

1. the five circulatory phases and six climatic *qi* (*wuyun liuqi*), often shortened to *yunqi* (“phases and *qi*”) as in Liu Wenshu’s book title *Suwen rushi yunqi lun’ao*;
2. the “govern-heaven and in-the-source” (*sitian zaiquan*) phrase, which referred to a division of a year into six periods of sixty days each, three of which were governed by Heaven (*yang*) and three of which were influenced by Earth (*yin*); and
3. the related “southern and northern governance” (*nanbei zheng* 南

北政) doctrine for reading appropriate seasonal pulses by indicating whether the forces of Heaven (southern, yang, warmer) or Earth (northern, yin, colder) were primarily in charge of the weather during the same six periods of sixty days each year.

The physician's hand helped remember the most important and subtle macro-microclimatic relationships central to healing in the *Inner Canon* tradition. On these hand images, the divisions of the palm-side of the fingers provided topographical locations for projecting Chinese characters not numbers. Physicians projected on to these locations "shorthand" for the most complex concepts developed in the literate medical tradition. This "shorthand" was both a mnemonic for medical concepts used in practice and an attempt to revive and popularize some of the more esoteric medical doctrines of the *Inner Canon* current of learning.

The social currency of the new phase-energetics system at the end of the eleventh century may well be linked to two new historical phenomena: first, the intellectual fashions of the famous Northern Song philosophers and cosmologists Zhou Dunyi 周敦頤 (1017-1073) and Shao Yong 邵雍 (1011-1077), both of whose doctrines involved using the calendar and calculating cosmological cycles;⁴⁴ and second, the state-sponsored publishing of medical texts under the Northern Song, in which these doctrines were included, were newly required for state medical examinations and widely distributed.⁴⁵ For the first time, a medical text coming out of the Imperial Medical Bureau published diagrams and essays that solely discussed the five circulatory phases and six climatic *qi* system.⁴⁶ Medicine was one more vehicle for the cosmological orientations of influential Northern Song philosophers – such as Zhou and Shao – to gain followers among Chinese elites and secure the emperor's patronage. By systematically integrating these new phase-energetics doctrines in his treatise, Liu reaffirmed his affiliations with the scholar-officials and intellectual fashions favored within the Northern Song court at which he was an imperial physician.

The first two of the 200 *juan* that comprise Huizong's *Medical Encyclopedia* (*Shengji zonglu*) were devoted to phase energetics. In them, the entire sexagesimal cycle is depicted in sixty circle-diagrams, one

⁴⁴ For discussion of the broader intellectual context including Zhou Dunyi and Shao Yong, see Despeux, "System of Five Circulatory Phases," pp. 134-35.

⁴⁵ See Goldschmidt, "Transformations of Chinese Medicine," pp. 197-221; and "Song Discontinuity," pp. 53-90.

⁴⁶ See Despeux, "System of Five Circulatory Phases," p. 136.

for each of the sixty possible combinations of the Heavenly Stems and Earthly Branches. A lengthy essay follows each diagram explaining among other things "*minbing* 民病" ("illnesses of the people"), namely the epidemics predicted to spread through the population in years considered most susceptible to celestial disjuncture of the sexagenary sequence.⁴⁷ Although the predictions are based on a numerological system, this is the earliest example of a systematic epidemiology promoted by the Chinese state bureaucracy. Despite skepticism among contemporary Song scholars regarding the genuineness of the seven interpolated chapters on phase energetics in the *Inner Canon*, nevertheless these chapters became integrated into classical Chinese medicine as legitimate within the *Inner Canon* textual tradition. The patronage of the emperor Renzong 仁宗 (r. 1022-1063) of the *liuren* cosmic-board divination (in which comparable circle diagrams and calculations using the Heavenly Stems and Earthly Branches were used) may have also contributed to the content of Liu Wenshu's treatise and later to Hui-zong's inclusion of phase energetics in his *Medical Encyclopedia*.⁴⁸

The medical hand mnemonics of the *Inner Canon* current of medical learning including and following Liu Wenshu's earliest two examples have the following characteristics: they are always of the left hand (the left thumb being used to point, perhaps while the right hand wrote or kept place in a book); they represent the hand of the practitioner (never of the patient); the hands are all gender neutral; they are always explained in an accompanying text, sometimes with a mnemonic rhyme; and they are found only in essays that discuss the three basic doctrines of phase energetics – *wuyun liuqi* ("phase energetics"), *sitian zaiquan* ("govern-heaven and in-the-source"), and *nanbei zheng* ("southern-northern governance"). They are all also based on the two most common and related systems for structuring time and seasonal change in Chinese culture: the old sexagenary calendrical system based on the Ten Heavenly Stems and Twelve Earthly Branches that appear as early as the oracle bones late in the Shang dynasty, and the new cosmological doctrine of five circulatory phases and six climatic *qi* of "phase energetics" dating no earlier than the eighth century. These were not considered merely abstract macro-microcosmic concepts but

⁴⁷ Although this text was presented to the emperor in 1117, it was not published until 1300. For the two *juan* with the 60 circle diagrams, see the following edition, *Shengji zonglu* 聖濟總錄, by Zhao Ji 趙佶 (Beijing: Renmin weisheng chubanshe, 1982), pp. 1-169. For a clear explanation of these charts and "phase energetics" doctrines in English, see Unschuld, appendix to *Huang Di nei jing su wen*, pp. 385-494.

⁴⁸ Ho, *Chinese Mathematical Astrology*, p. 36, for Renzong's patronage, and pp. 136-37 for reference to hand calculations for *liuren* divininations.

rather concrete technical facts that were projected onto the left palm as a corporeal and kinesthetic mnemonic intended to facilitate their memorization and thus promote their application.

Hand mnemonics played a significant role in promulgating some of the most complex doctrines in Chinese medicine while simultaneously aiding physicians to memorize and remember them in their clinical practice. The two examples discussed here were reproduced in medical sources from at least the time of the Yuan edition of 1339 to the *Daozang* edition of 1444–45, and they remain practical mnemonic systems for practitioners of Chinese medicine, circulating as they still do in Chinese medical publications in mainland China, Hong Kong, and Taiwan.⁴⁹ Comparable hand mnemonics are readily found in modern Chinese almanacs, geomancy manuals, guides to the *Book of Changes*, Taoist and Buddhist religious texts, and fortune-telling handbooks. In all of these cases the hand is more than a ready tool for aiding memory; its jointed structure of sectional squares reinforced the relationships among the Chinese characters imaginatively projected on it and thereby naturalized the doctrines these characters represented by fitting neatly between the joints of the fingers.⁵⁰ These illustrations take advantage of the positional, sequential, and directional possibilities of the natural divisions of the fingers to simplify the basic points of each doctrine. The shape of the hand and natural divisions of finger joints, instead of reflecting an inner reality and predetermined fate of an individual, rather confirm geographic, calendrical, and cosmological truths. What was written in the lines of the joints of the fingers legitimated as natural and self-evident what were cultural interpretations of macrocosm-microcosm relationships. The physician's palm-side of the fingers acted as both a mnemonic means toward practical mastery over disease and a symbolic means by which the new phase energetics doctrine of the *Inner Canon* current of medical learning were reinforced as the natural patterns of the cosmos.

⁴⁹ For evidence that these medical hand mnemonics continue to circulate in contemporary China, see Yang Li 楊力, *Zhouyi yu zhongyi yunqi* 周易與中醫運氣 (Taipei: Jianhong chubanshe, 2002), appendix, which reprints seven examples. Yang Li published this book with illustrations of the same seven hand mnemonics previously with the original title *Zhongyi yunqi xue* 中醫運氣學 (Beijing: Beijing kexue jishu chubanshe, 1995): figs. 5.9 and 5.10, p. 34; fig. 5.14, p. 40; fig. 17.5, p. 222; fig. 36.3, p. 483; and appendix, fig. 3, p. 823. She did not include any hand illustrations in her first publication, *Zhouyi yu zhongyixue* 周易與中醫學 (Beijing: Beijing kexue jishu chubanshe, 1989).

⁵⁰ See David Hillman and Carla Mazzio, eds., *The Body in Parts: Fantasies of Corporeality in Early Modern Europe* (New York/London: Routledge, 1997). Although none of the examples in this book discusses the hand separately or even the body as mnemonic device, the overall analysis is informed by aspects of European culture that were imagined to reside in, on, and about individual parts of the human body.

POSTSCRIPT: THE MEANING OF CLOUDS AND THE LOGIC OF WRITING ON HANDS

In the mid-fifteenth-century *Daozang* version of Liu Wenshu's *Suwen rushi yunqi lun'ao*, the images of the hand mnemonics have subtle changes. Instead of being cut off just after a bracelet, as in the earlier 1339 edition, the hands in the *Daozang* version come out of clouds of *qi*. (Compare figure 1 with figure 13.) Resembling the natural patterns found on tortoise shells – with certain resonance with divination practices of old using tortoise plastrons – these swirls were not merely decorative, they visually reinforced the doctrines written on the palms above them as the natural order of things and as having cosmic significance. This visual detail could be compared to the parallel verse structure of classical Chinese poetry; the cloud-vapor pedestal resonates with and further amplifies the writing on the hands arising out of it. Using grammar as a metaphor, one could also argue that the swirling clouds convey the mass noun – a capitalized “*Qi*” – and the characters written on the hand break down the particular types of the mass noun – lower case “*qi*” – that characterized seasonal change each year. The swirling clouds of *qi* out of which the hands arose visually reinforced the specific types of *qi* written on the hands just as the physical contours of the left palm itself naturalized the logic of the doctrines written on them.

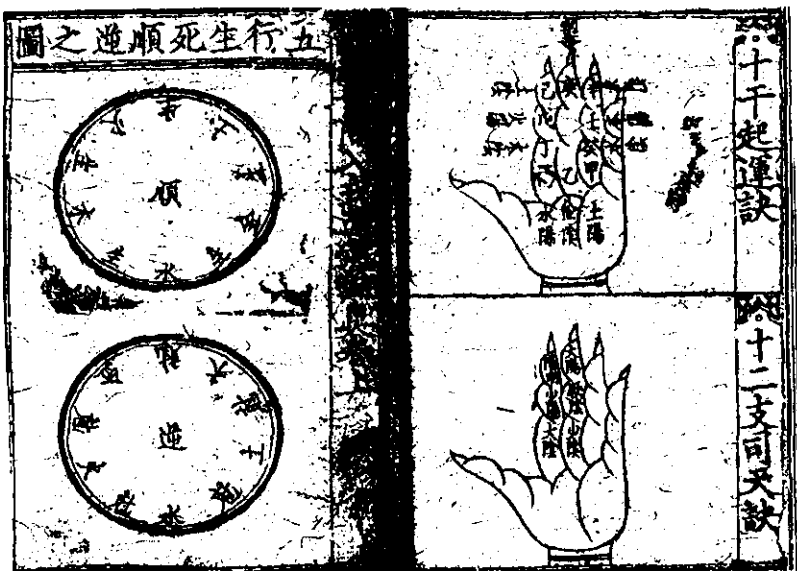


Figure 1. Medical Hand Mnemonics

Liu Wenshu, *Suwen rushi yunqi lun'ao*, 1339 edn. (see n. 26). Clockwise from upper right-hand corner: Ten Heavenly Stems and the Circulatory Phases; Twelve Earthly Branches That Govern Heaven; Conquest Cycle of Five Phases; and Production Cycle of Five Phases.

This is a photocopy of the earliest extant edition of 1339, kept in the rare books collection of the Beijing University library. Soren Edgren, head of the Chinese Rare Book Project at Princeton University, tracked down and made a photocopy of this page for me. Franciscus Verellen first brought this example to my attention in the paper "Efficacious Designs: The Use of Graphics in the Taoist Canon," presented at the conference held at the Collège de France, "From Image to Action: The Dynamics of Visual Representation in Chinese Intellectual and Religious Culture," Sept. 2-5, 2001, published as "The Dynamic Design: Ritual and Contemporary Graphics in Taoist Scriptures," in Benjamin Penny, ed., *Daoism in History: Essays in Honour of Liu Ts'un-Yan* (London: Routledge-Curzon, 2006), pp. 159-86.

Table 1. Summary of Characters Written On and Around Left Palm, Figure 2

	LEFT OUT- SIDE	INDEX	MIDDLE	RING	LITTLE	RIGHT OUT- SIDE
			[above] Yang 陽 Metal 金			
Tip	Yin 陰 Earth 土	(6) Ji 己	(7) Geng 庚	(8) Xin 辛	Water 水	Yin 陰
Third Crease	Yang 陽 Fire 火	(5) Wu 戊		(9) Ren 壬	Wood 木	Yang 陽
Second Crease	Yin 陰 Wood 木	(4) Ding 丁		(10) Gui 癸	Fire 火	Yin 陰
Base Crease		(3) Bing 丙	(2) Yi 乙	(1) Jia 甲		
		Water 水	Metal 金	Earth 土		
		Yang 陽	Yin 陰	Yang 陽		

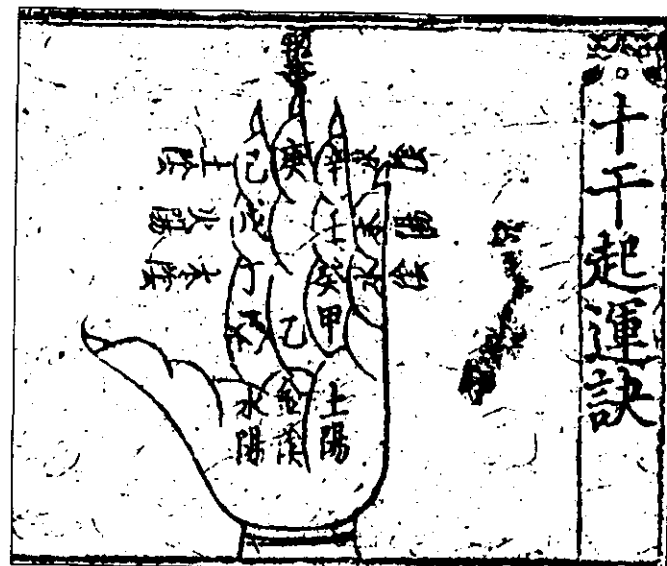


Figure 2. The Ten Heavenly Stems and Circulatory Phases Mnemonic
Liu Wenshu, *Suwen rushi yunqi lun'ao*, 1339 edn.

Table 2. Summary of Directions for Counting Ten Celestial Stems of Left Hand, Figure 2

(ORDER NO.) FINGER LOCA- TION	CELES- TIAL STEM	CHINESE GRAPH	PHASE	YIN/ YANG
(1) Begin: bot- tom crease, ring finger	Jia	甲	Earth	Yang
(2) Bottom crease, middle finger	Yi	乙	Metal	Yin
(3) Bottom crease, pointer finger	Bing	丙	Water	Yang
(4) Middle crease, pointer	Ding	丁	Wood	Yin
(5) Top crease, pointer	Wu	戊	Fire	Yang
(6) Tip of pointer	Ji	己	Earth	Yin
(7) Tip of middle	Geng	庚	Metal	Yang
(8) Tip of ring	Xin	辛	Water	Yin
(9) Top crease, ring	Ren	壬	Wood	Yang
(10) End: middle crease, ring	Gui	癸	Fire	Yin

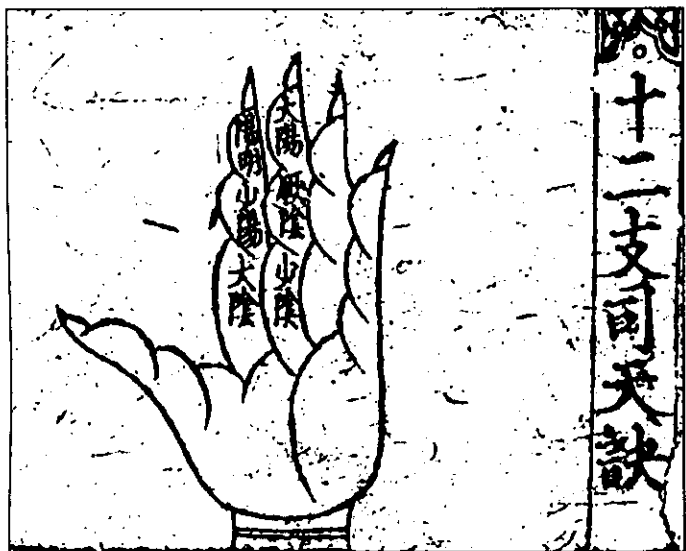


Figure 3. *Twelve Earthly Branches and Govern-Heaven [Qi] Mnemonic*
Liu Wenshu, *Suwen rushi yunqi lun'ao*, 1939 edn.

Table 3. *Summary of Characters and Their Locations in Figure 4*

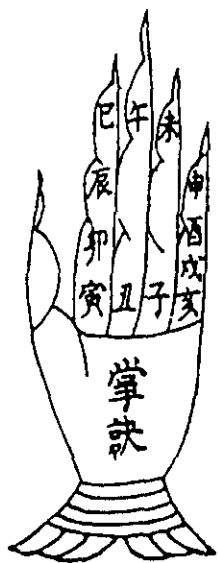
	OUTSIDE INDEX	INDEX	MIDDLE	RING	LITTLE
			7: Wu 午		
Tip	6: Si 巳	Yangming 陽明	Taiyang 太陽	8: Wei 未	9: Shen 申
Top Crease	5: Chen 辰	Shaoyang 少陽	Jueyin 厥陰		10: You 酉
Middle Crease	4: Mao 卯	Taiyin 太陰	Shaoyin 少陰		11: Xu 戌
Bottom Crease	3: Yin 寅		2: Chou 丑	1: Zi 子	12: Hai 亥



Figure 4. *Mnemonic of the Twelve Earthly Branches That Govern Heaven*
Liu Wenshu, *Suwen rushi lunqi lun'ao*. I use here the 1923-26 Shanghai edn. of the Ming Zhengtong 1444-45 edn. of the Daozang (DZ 1022, ce 664), p. 2b.

Table 4. *Summary of Twelve Earthly Branches Mnemonic, Figure 4*

(NUMBER) FINGER LOCATION	TWELVE BRANCHES	CHINESE GRAPH	STEP OF QI
(1) Bottom crease, ring finger	Zi	子	Taiyang
(2) Bottom crease, middle finger	Chou	丑	Taiyang
(3) Bottom crease, pointer finger	Yin	寅	Jueyin
(4) Middle crease of pointer	Mao	卯	Jueyin
(5) Top crease of pointer	Chen	辰	Shaoyin
(6) Tip of pointer	Si	巳	Shaoyin
(7) Tip of middle	Wu	午	Shaoyang
(8) Tip of ring	Wei	未	Shaoyang
(9) Tip of little	Shen	申	Taiyin
(10) Top crease of little	You	酉	Taiyin
(11) Middle crease of little	Xu	戌	Yangming
(12) Bottom crease of little	Hai	亥	Yangming



酉 午 卯 子
雞 馬 兔 鼠

戌 未 辰 丑
狗 羊 龍 牛

亥 申 巳 寅
猪 猴 蛇 虎

十二生肖

Table 5. Summary and English Translation of Figure 5

10 You Chicken	7 Wu Horse	4 Mao Rabbit	1 Zi Rat
11 Xu Dog	8 Wei Sheep	5 Chen Dragon	2 Chou Ox
12 Hai Pig	9 Shen Monkey	6 Si Snake	3 Yin Tiger

Figure 5. Palm Mnemonic of Twelve Earthly Branches and Square Diagram of Twelve Zodiac Animals Corresponding to the Twelve Earthly Branches

Chen Yuanjing 陳元觀, Shilin Guangji 事林廣記 (1325 Japanese edn.).

假如入正月初
十日生即初一
起危星數至初
十日便是參星
參星元配在申
宮便是太陰星
餘皆做此例

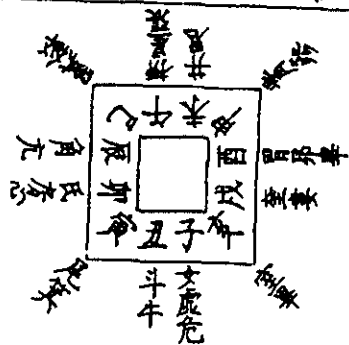


Figure 6. Square Grid of Earthly Branches and Corresponding Yin Stars
Chen, Shilin Guangji.

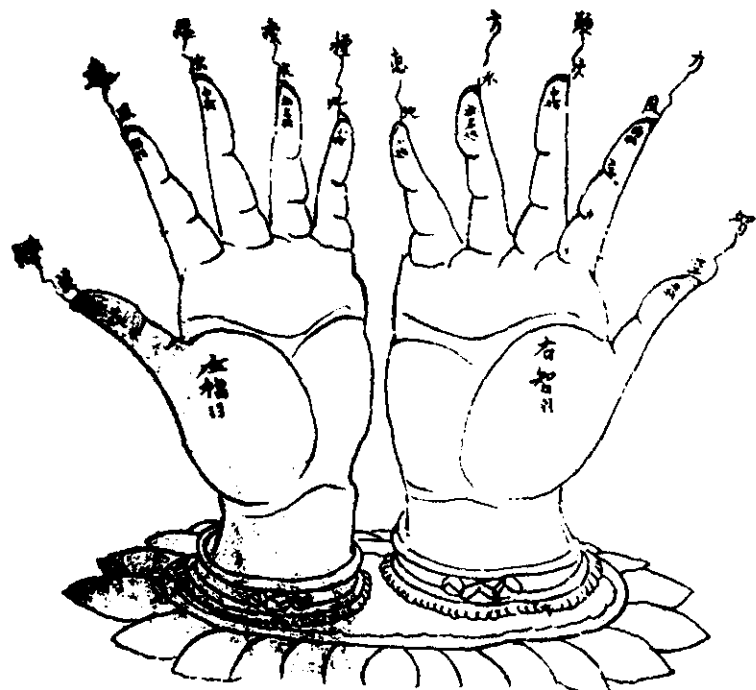


Figure 7. Buddhist Meditation Hands from Dunhuang
Probably 8th c.; Serindia (1921) (see n. 37).

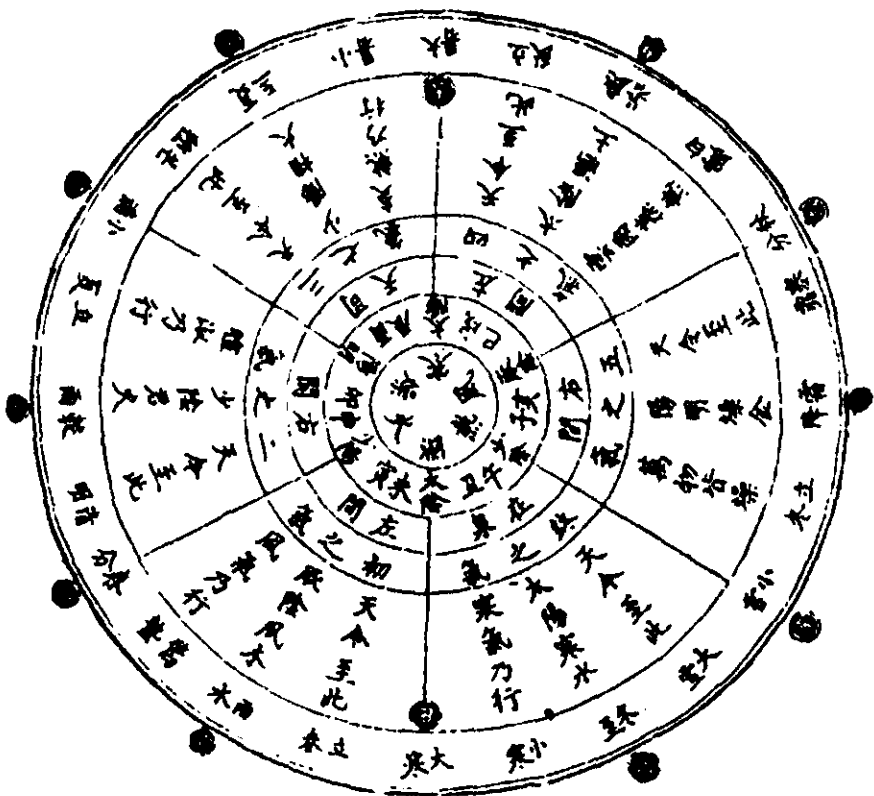


Figure 8. Circle Diagram of the Five Circulatory Phases and Six Climatic qi
Liu Wenshu, Suwen rushi yunqi lun'ao (Daozang edn.; rpt. Shanghai, 1923-26).

Table 6. Pairs of Earthly Branches, Six Circulating Qi, Six Steps of Qi, Five Phases, Months

1 WITH 7	2 WITH 8	3 WITH 9	4 WITH 10	5 WITH 11	6 WITH 12
Zi-Wu	Chou-Wei	Yin-Shen	Mao-You	Chen-Xu	Si-Hai
Shaoyin	Taiyin	Shaoyang	Yangming	Taiyang	Jueyin
Lesser Yin	Greater Yin	Lesser Yang	Yang Brightness	Greater Yang	Attenuated Yin
11th & 5th mo.	12th & 6th mo.	1st & 7th mo.	2nd & 8th mo.	3rd & 9th mo.	4th & 10th mo.

六十年紀運圖

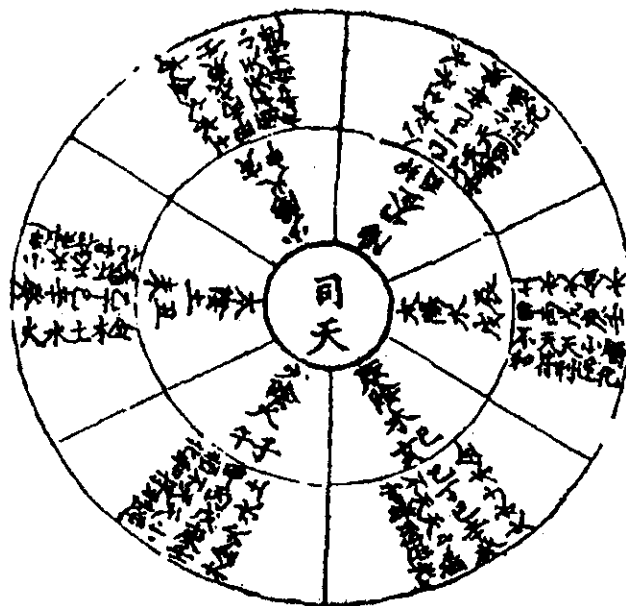


Figure 9. Circle Diagram of the Sexagenary Cycle
Liu Wenshu, Suwen rushi yunqi lun'ao (Daozang edn.; rpt. Shanghai, 1923-26).

Table 7. Summary of the Six Steps of Qi, Five Phases, Climatic Condition

INITIAL QI	SECOND QI	THIRD QI	FOURTH QI	FIFTH QI	SIXTH QI
Jueyin	Shaoyin	Shaoyang	Taiyin	Yangming	Taiyang
Attenuated Yin	Lesser Yin	Lesser Yang	Greater Yin	Yang Brightness	Greater Yang
Wind	Ruling Fire	Minister Fire	Dampness	Dryness	Cold
Wood	Fire	Fire	Earth	Metal	Water
Windy qi circulates	Warmth circulates	Scorching heat circulates	Clouds and rain circulate	Myriad things are dry	Cold qi circulates

論交六氣時日第七

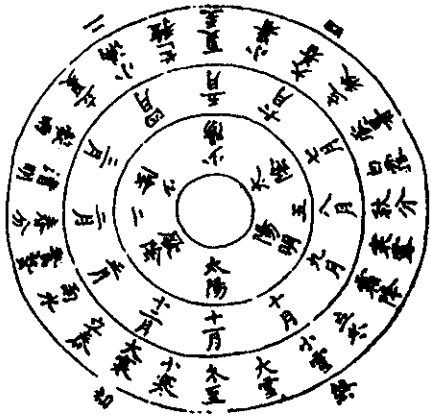


Figure 10. Correspondence between the Six Governing qi, Months, and Seasonal Nodes

Liu Wenshu, Suwen rushi yunqi lun'ao (Daozang edn.; rpt. Shanghai, 1923-26).

主氣之圖

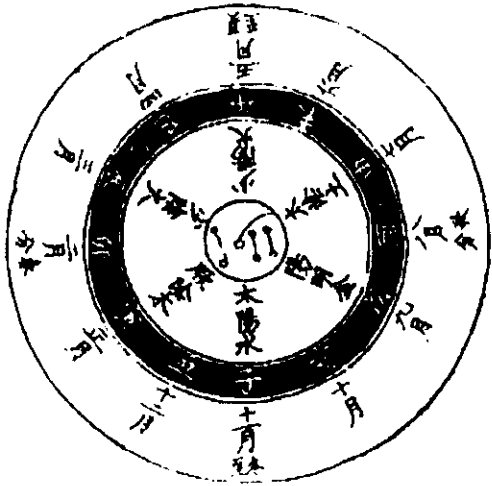


Figure 11. Diagram of Host qi

Liu Wenshu, Suwen rushi yunqi lun'ao (Daozang edn.; rpt. Shanghai, 1923-26).

十二支司天訣

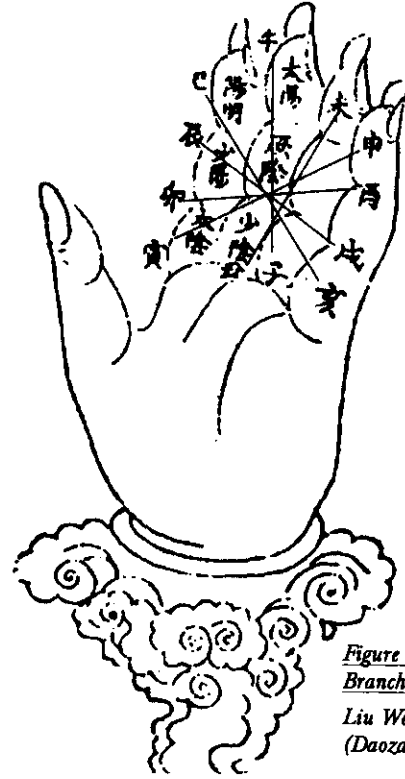


Figure 12. Mnemonic of the Twelve Earthly Branches That Govern Heaven

Liu Wenshu, Suwen rushi yunqi lun'ao (Daozang edn.; rpt. Shanghai, 1923-26).

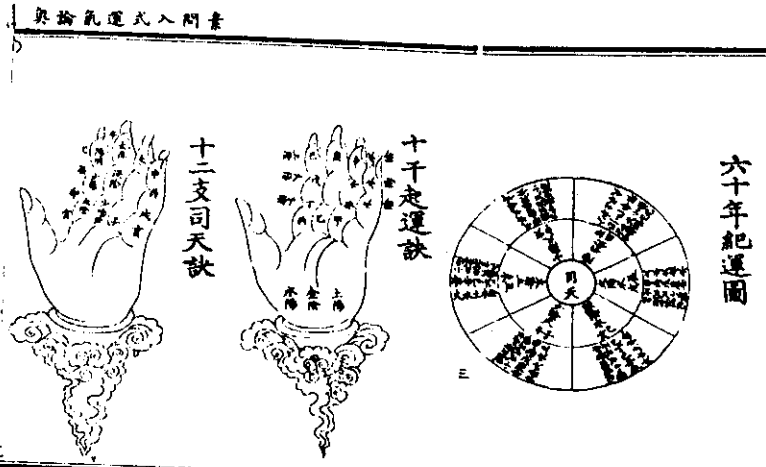


Figure 13. From Right to Left, the Sexagenary Cycle, Ten Heavenly Stems, and Twelve Earthly Branches

Liu Wenshu, Suwen rushi yunqi lun'ao (Daozang edn.; rpt. Shanghai, 1923-26).