

Compendium of Materia Medica

Běncǎo Gāngmù 本草綱目

The *Compendium of Materia Medica* (*Bencao gangmu*; 1596) was an encyclopedic work of medicine and natural history written by Li Shizhen (1518–1593) in the last decades of the sixteenth century. Since the early seventeenth century it has become one of the most widely cited and studied books in the history of Chinese science and medicine.

An encyclopedic work of medicine and natural history, the *Compendium of Materia Medica* (*Bencao gangmu*; 1596) was written by Li Shizhen (1518–1593) in the last decades of the sixteenth century. Although the author's own text grafts together several scholarly genres, the *Compendium* is best known as the result of a rich tradition of *bencao* literature. The term *bencao* has variously been translated as “pharmacopoeia,” “materia medica,” “pandect of natural history,” “pharmaceutical literature,” and “encyclopedia,” all of which approximate the nature of the genre. This type of medical text focused on the drugs used in Chinese medical prescriptions, classifying each drug according to qualities such as flavor, toxicity, presence or absence of heat, and appearance, and occasionally provided an explanation of the most common or alternate names for the substance. *Bencao* texts could also include discussions of the textual and natural history of each drug or debates about its properties, and for this reason, *bencao* are valuable sources for the study of plants, animals, and stones throughout the history of China.

The *Compendium* comprises fifty-two *juan* (roughly equivalent to chapters) and almost 2 million characters, enormous in scope for a *bencao* work. Of the 1,892 drugs included, 374 were added for the first time by Li Shizhen. The *Compendium* broke from previous collections of materia medica in the extent to which it incorporated literature from nonmedical texts (poetry, history, tales of the strange, and so on) as sources on the natural history of medical drugs. The structure of the work was based largely on Tang Shenwei's (ca. 1086–1093) *Organized and Classified Materia Medica* (*Zhenglei bencao*), a model in its own gestures toward incorporating nonmedical scholarly texts into the service of explicating the use of plants and animals in medicine. The title of the *Compendium* reflected Li's intellectual debt to neo-Confucian philosopher Zhu Xi (1130–1200): The phrase *gangmu* invokes the structure of Zhu Xi's own *Tongjian gangmu*, with a basic macroclassification (*gang*) supplemented by more detailed analyses of individual entries (*mu*).

Contents of the *Compendium of Materia Medica*

Several editions of the *Compendium* have been published since its first printing in 1596, and most contain the same basic elements. (For a list of the contents, see table 1.) The text began with a section of introductory material, including a preface by famous Ming scholar Wang Shizhen (1526–1590), 1,109 illustrations drawn by Li Shizhen's son Li Jianyuan and collected together in two separate *juan*,

a table of contents, and a preface by Li Shizhen. Li's own short, prefatory remarks provided background on the macrostructure of the text and the logic of its arrangement, from the most elemental (water) to the most complex (humans). Li also discussed the place of the *Compendium* with respect to prior works of its kind as well as the reasons behind the inclusion or arrangement of certain drug entries.

Next, Li chronicled the history of *bencao* literature and provided a bibliography of medical and nonmedical sources consulted in writing the *Compendium*, along with a list of previous *bencao* and the number of drugs in various categories that each contained. Extended descriptions of the contents of two foundational *bencao* texts (both of which Li attributed to Tao Hongjing, though the

authorship of the second is now questioned), the *Shennong bencao jing* and the *Mingyi bielu*, were followed by Li's discussion of medical principles such as seasonality, organ/functionality systems, flavor, and yin and yang and their relevance to the prescription of drugs. Li followed this with a long section on the theory and practice of pharmacology, including discussions of drug interactions and a list of materials organized according to major illnesses they were used to treat.

The remainder of the text consisted of classified descriptions of individual drugs, including elemental materials such as water and fire, stones, tools and implements, plants, animals, and humans. According to Li, the logic of the arrangement progressed from the lowliest of creatures

TABLE 1 Contents of the *Compendium of Materia Medica (Bencao gangmu)*

Prefatory material	Wang Shizhen 1590 preface* Appended Illustrations List of Contents Author's Preface
Juan 1: Introductory Materials A	Bencao through the Ages Medical Bibliography Nonmedical Bibliography Collected List of Drug Products Included in Previous Bencao Introduction to the Shennong bencao jing Measurement and Preparation of Drugs from Tao Hongjing's Mingyi bielu Timing of Drug Collection According to Qi and Wu Seven Prescriptions Ten Functions Quality, Flavor, Yin, and Yang Recommendations and Taboos Concerning the Five Flavors Dominating and Submissive Relationships of the Five Flavors Symptoms and Root Causes of Yin and Yang Rising, Falling, Floating, and Sinking Seasonal Drug Use Principles of Using Drugs According to Five Evolutions and Six Excesses Using Drugs to Nourish and Purge the Viscera (Six Fu and Six Zang) Nourishing and Purging According to the Five Zang and Five Flavors Principles of Using Drugs According to Emptiness and Fullness of the Viscera Guiding Principles

(continued)

TABLE 1 (continued)

Juan 2: Introductory Materials B	Drugs with the Same Name and Drugs with Different Names Drug Relationships of Mutual Affinity, Enhancement, Rejection, and Inhibition Incompatible Drugs Food Taboos When Taking Drugs Taboos during Pregnancy Taboos of Food and Drink Li Dongyuan's Preface to Suizheng yongyao Chen Cangqi's Preface to Zhuxun yongyao Zhang Zihe's Gantu xia sanfa Eight Imperatives, Six Losses, and Six Incurable Illnesses Yaodui's Suiwu yaopin Table of Contents of the Shennong bencao jing Tables of Contents of Song Bencao Works
Juan 3–4: Main Indications of Drugs for One Hundred Illnesses	114 illnesses listed
Juan 5: Waters	43 drugs: heaven (13); earth (30)
Juan 6: Fires	11 drugs
Juan 7: Earths	61 drugs
Juan 8–11: Metal and Stone	161 drugs: metals (28); precious stones (14); stones (72); salts (20 + 27 appended)
Juan 12–21: Herbs	611 drugs: mountain (70); fragrant (56); marshy (126); toxic (47); creeping (73 + 19 appended); aquatic (23); rocky (19); mosses (16); miscellaneous (9); with a name but no use (153)
Juan 22–25: Grains	73 drugs: sesame; wheat; and rice (12); millet (18); beans (14); fermented and prepared (29)
Juan 26–28: Vegetables	105 drugs: pungent (32); slippery (41); melons (11); aquatic (6); fungi (15)
Juan 29–33: Fruits	149 drugs: five fruits (11); mountain (34); exotic (31); flavorful (13); melons (9); aquatic (6 + 23 appended); appended miscellaneous (21 + 1)
Juan 34–37: Woods	180 drugs: fragrant (35); tall (52); watery (51); parasitic (12); luxuriant; bamboos (4); miscellaneous (7 + 19 appended)
Juan 38: Clothing and Tools	79 drugs: clothing (25); tools (54)
Juan 39–42: Bugs	106 drugs: egg-born (45); change-born (31); moisture-born (23 + 7 appended)
Juan 43–44: Scaly	94 drugs: dragons (9); snakes (17); fish (31); scaleless fish (28 + 9 appended)
Juan 45–46: Armored	46 drugs: turtles and tortoises (17); shellfish (29)
Juan 47–49: Birds	77 drugs: aquatic (23); grassland (23); forest (17); mountain (13 + 1 appended)
Juan 50–51: Beasts	86 drugs: domestic (28); beasts (38); mice (12); "dwellers" (8)
Juan 52: People	37 drugs

*This list was compiled on the basis of the Liu Hengru and Liu Shanyong edition of 2002, which in turn was based on the 1596 Jinling and 1603 Jiangxi printings of the *Compendium*. The Jiangxi edition also included prefaces from Xia Liangxin and Zhang Dingsi, along with Li Jianyuan's memorial.

to the most noble. The structure and contents of the *Compendium* were also influenced by Li's deep interest in the five phases (water, fire, earth, metal, and wood).

Printing of the *Compendium of Materia Medica*

Li Shizhen spent more than thirty years researching and compiling the *Compendium* and spent the last decade of his life searching for a publisher. The carving of blocks for the first edition of the *Compendium* by printer Hu Chenglong finally began in Nanjing in 1593, but the work was not printed until 1596, three years after Li's death. This first edition of the *Compendium*, known as the Jinling edition (an archaic term for Nanjing), was probably sold in limited quantities to the relatively wealthy professionals who could afford it.

Li's son Li Jianyuan had accompanied his father along many of his travels, had drawn the illustrations for the *Compendium*, and was foundational in ultimately getting the work published. He submitted a memorial to the imperial palace in the first lunar month (January or February) of 1596, presenting the first printed copy of the *Compendium of Materia Medica* to the emperor in an attempt to obtain imperial backing for the printing of his father's work. An account in the *Ming History* attests that the emperor admired the *Compendium*, ordering that it should be printed and circulated throughout the empire so that scholars would all have the book. However, this account is probably an exaggeration: The inscription on the manuscript in the Ming imperial library simply stated that the emperor saw the *Compendium*, the Ministry of Rites knew of it, and it would stay in the palace.

Further editions were printed in 1603, 1606, 1640, and then countless times through the twenty-first century. The 1603 Jiangxi printing included additional prefaces, along with Li Jianyuan's memorial to the emperor. More illustrations were added in successive printings of the *Compendium*, some illustrations were significantly altered, and Qing editions began appending Li's shorter works to the text. Zhao Xuemin's (1719–1805) *Correction of Omissions in the Compendium of Materia Medica* (*Bencao gangmu shiyi*) was the most significant revision of and commentary to Li's text. It was added as a further



A page from an 18th century edition of the *Compendium of Materia Medica*.

appendix to later editions of the *Compendium* after its initial publication in 1871.

Current Influence in China

The *Compendium of Materia Medica* is still studied as part of Chinese medical curricula, and modern scientists are still researching the biochemical bases of many of the drugs discussed by Li Shizhen. Partial or complete translations of the text have been published in Japanese, French, German, and English. Li was reinvented as a father of traditional Chinese medicine under Chinese Communist rule, and the *Compendium* is now typically acknowledged as a fundamental text in the history of Chinese science and medicine. Several Chinese artists

Li Shizhen on Dragons

The excerpt below is a translation of a discussion on dragons from Li Shizhen's *Compendium of Materia Medica*.

Li Shizhen says: According to Luo Yuan in the *Erya* *Ly*i: The dragon is the chief of the scaly creatures. Wang Fu described how its shape contains nine similarities. To wit, the head of a camel, the antlers of a deer, the eyes of a rabbit, the ears of an ox, the neck of a snake, the belly of a clam, the scales of a fish, the claws of an eagle, and the paws of a tiger. Its back has

81 scales, which as nine-nines is a yang number. Its sound is like tapping on a copper plate. The sides of its mouth have whiskers. Beneath its chin is a bright pearl. Under its throat are reversed scales. On top of its head is the *boshan*, also called the *chimu*. Without the *chimu*, the dragon cannot ascend to the heavens. Its exhalations of qi form clouds, and can transform into both water and fire.

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in the twenty-first century, including the installation artist Huang Yongping and the popular musician Jay Chou, have reinterpreted the *Compendium* in works that challenge ideas of traditional Chinese culture.

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Further Reading

- Cooper, W., & Sivin, N. (1973). Man as medicine: Pharmacological and ritual aspects of traditional therapy using drugs derived from the human body. In S. Nakayama & N. Sivin (Eds.), *Chinese science: Explorations of an ancient tradition* (pp. 203–272). Cambridge, MA: MIT Press.
- Furth, C. (1988). Androgynous males and deficient females: Biology and gender boundaries in sixteenth and seventeenth century China. *Late Imperial China*, 9(2), 1–31.

- Luo Xiwen. (Trans.). (2003). *Bencao gangmu* [Compendium of materia medica] (Vols. 1–6), Beijing: Foreign Languages Press. (Original work published 1596)
- Métailié, G. (2001). The *Bencao gangmu* of Li Shizhen. In Elisabeth Hsu (Ed.), *Innovation in Chinese medicine* (pp. 221–261). Cambridge, UK: Cambridge University Press.
- Needham, J., & Lu, G.-D. (1986). *Science and civilisation in China: Vol. 6.1. Botany*. Cambridge, UK: Cambridge University Press.
- Read, B. E. (1982). *Chinese materia medica*. Taipei, Taiwan: Southern Materials Center. (Reprinted from *Chinese materia medica*, Beijing: Peking Natural History Bulletin, 1923–1931)
- Unschuld, P. (1986). *Medicine in China: A history of pharmaceuticals*. Berkeley: University of California Press, 1986.



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