

Sketches of Otohistory

Part 12: The History of Otolology in Traditional Chinese Medicine

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A Tribute to Traditions

The past Sketches of Otohistory have outlined modern otology from its beginnings in the ancient circum-Mediterranean civilizations through to Renaissance Europe and later centuries. Other cultures also developed their own medical traditions, sometimes leading to formidable skills, as the pre-Columbian and pre-Inca cranial surgery attest. However, most of them have all but disappeared or have little impact in today's world, with the exception of Traditional Chinese Medicine (TCM) and perhaps the Ayurvedic medicine of South-East Asia, which persist alongside and integrate with Western practice. This part of Otohistory pays respect to these medical traditions by sketching some historical aspects of otology in TCM.

The roots of all medicine reside in the exploration of natural, mostly herbal, remedies. Therefore the difference between Eastern and Western systems does not so much lie in their origins but in the later development and theoretical underpinnings of the medical culture. The religious and philosophical teachings of Buddhism, Confucianism, and Taoism blend in TCM and its focus arises from a holistic view of life, emphasizing the unity of mental, spiritual and physical elements of human nature and an equally unified approach to the cure of diseases.

The Ear and the Kidney: Zang-Fu Organs, Meridians and Collaterals

The dawn of TCM is associated with several legendary emperors, among them Shen Nong (3494 BCE.). He is credited with the first compendium on 365 herbal remedies, classified by their medical value. Complementing this pharmacopoeia, the two volumes of *Emperor Huang-di's Classic on Medicine, Basic Questions (Su Wen)* and *Miraculous Pivot (Ling Shu)* summarized the basic theories and principles of TCM. The 'Yellow Emperor' is said to have reigned from 2698 to 2599 BCE, but these works were not written until the Spring-Autumn and Warring States Period (770~221 BCE). They laid the foundation of the holistic concept of the Zang-fu Organ Theory and the Meridians and Collaterals Theory for the next two thousand years.

Zang-fu includes five inner organs of 'Zang', six inner organs of 'Fu' and some extraordinary organs of 'Fu' (fig. 1). Heart, liver, spleen, lung and kidney comprise the five 'Zang'-organs, also known as yin organs; the six 'Fu'-organs (yang organs) include gallbladder, stomach, large and small intestine, urinary bladder and the 'triple energizer' (sanjiao). The brain, bones, marrow, vessels and uterus are the extraordinary organs of 'Fu'. It is important

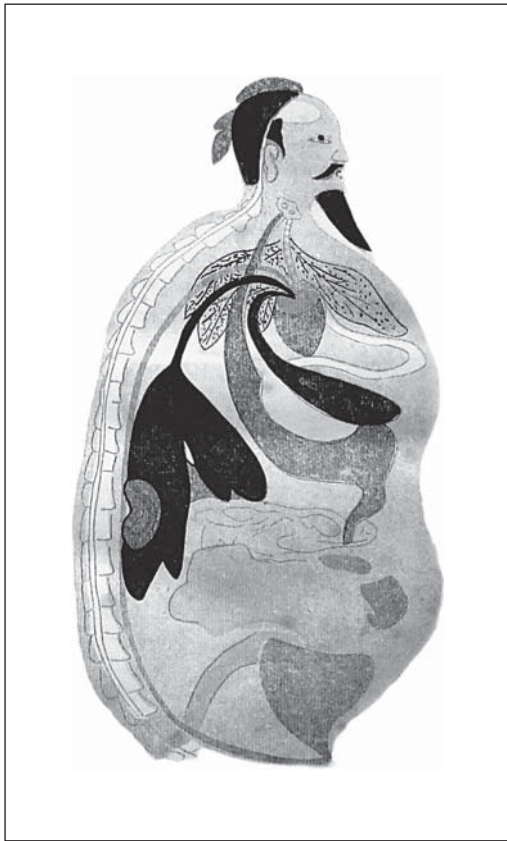


Fig. 1. Zang-fu Organs. The depiction of Zang-fu organs conveys basic anatomical knowledge. For diagnostic and therapeutic purposes, however, traditional medicine defines Zang-fu organs in their holistic physiological context. From Zhang M: *Picture Interpretation of the Meridians and Collaterals (Jing Luo Tu Shou)*. Beijing, Publishing House of Ancient Books on Traditional Chinese Medicine, 1996. The original is in color. Reprinted with permission.

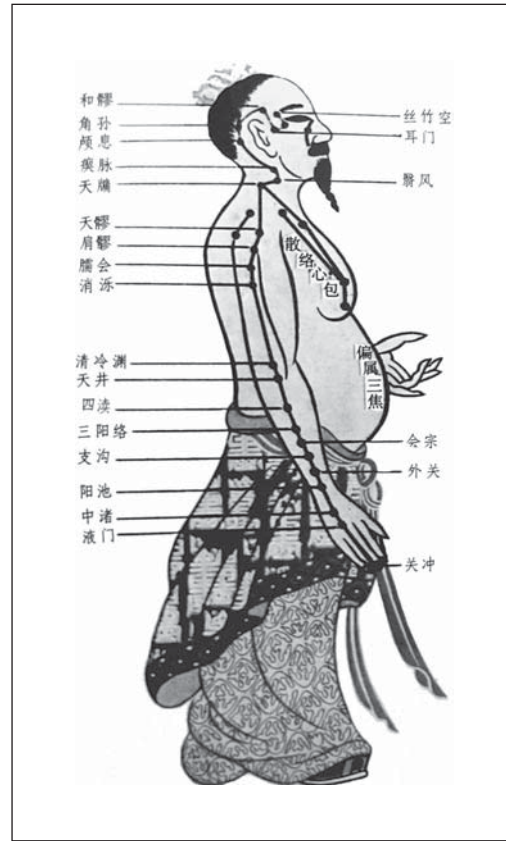


Fig. 2. Meridians and collaterals. Meridians linking to the Zang-fu organs travel along the lateral aspects of the limbs. Depicted here are meridians of the triple energizer. The labels on the figure indicate acupuncture cross-links to various organs. From Lin Y-G: *An Atlas of Channels and Collaterals (Jing Luo Tu Jie)*. Fuzhou, Fujian Publishing House of Science & Technology, 1985, p. 11. Reprinted with permission.

to note that Zang-fu organs do not correspond to their Western counterparts in the anatomical sense. Rather, the Zang-fu system considers ‘organs’ by their contributions to the harmony of the body. This is particularly evident in the ‘triple energizer’, often considered an organ without form, which is thought to coordinate metabolic functions of organs in the upper, middle and lower regions of the torso.

Fundamental for the development of traditional medical practice also was the theory of the meridian-collateral system, a network of channels for the life force qi and the body fluids to circulate and nourish the Zang-

fu organs. Meridians and collaterals run internally with branches close to the surface of the body (fig. 2), so that internal dysfunctions can be expressed at other places traversed by this network. For example, ‘when lung and heart are afflicted, the pathogenic qi lingers in both elbows’, states the *Miraculous Pivot*. External symptoms can therefore indicate the state of internal organs which, in turn, can be influenced through communication with the meridians and collaterals. Hence, neither a detailed knowledge of Western anatomy nor surgical interventions were required in the diagnosis and treatment of diseases.

Within this framework, the ear also cannot be viewed in isolation but only in relation to the Zang-fu organs, mostly to the kidney and liver, and to a lesser extent to the heart, gallbladder and spleen. Specifically, 'the kidney's qi flows to the ears. Ears can hear five sounds [of the Chinese pentatonic scale] if the kidney functions in harmony' [*Miraculous Pivot*].

Godly Ways of Hearing

While qi and the harmony between the body's elements determine our health, sensory perception was apparently also under some control of higher powers. Such views persisted for a long time, and by the end of the 19th century Tang Zong-hai explained in his book *Discussion on Blood (Xue Zheng Lun)* that 'the ear is shaped like a pearl and contains sacred fluid. It is the place where the hearing-god dwells'. The sacred fluid, derived from the essence of the body, nourished the god of hearing and the god of position, who imparted information from these senses.

Windy Deafness and Obstructed Qi: Deafness and Its Diagnosis

Deafness was an early medical concern in China, and the first record on hearing disorders may date back to the Xia and Shang (Yin) Dynasties (2200~1122 BCE). Inscriptions on bronze containers and tablets from animal bone recorded diseases according to different parts of the body including the ear. Deafness was also listed among 21 diseases in the book *Shan Hai Jing*, published in the Eastern Zhou Dynasty (770~221 BCE). Its diagnosis followed the practical and universal approach to this problem as expressed in the *Commentary on the Spring and Autumn Annals (Zuo Zhuan)*, attributed to Zuo Qiu-ming (5th century BCE): 'If the ear cannot hear five sounds, it is deaf.'

As medical practice developed, the perception of diseases became more differentiated. Dr. Ge Hong (283~363 CE) presented a detailed classification of deafness in the *Handbook of Prescriptions for Emergencies (Zhou Hou Bei Ji Fang)*:

- 1 *Obstructed Deafness*, caused by impacted cerumen.
- 2 *Suppurative Deafness*, similar to suppurative otitis media.

Other forms of hearing disorders caused by the invasion of external qi or physiological and emotional changes are more difficult to classify in modern terms:

- 3 *Windy Deafness*. If the *Wind* (a qi external to the body) invades the body, it obstructs the internal qi running in meridians and collaterals: a corollary to vascular disorders?
- 4 *Tired Deafness*. Overwork can wear down normal blood and qi, the patient feels exhausted, and tired deafness ensues: an early example of stress-related sudden hearing loss?
- 5 *Weak Deafness*. Similar to tired deafness but developing gradually, Weak Deafness is usually accompanied by another disease.

Emperor Huangdi's Classic on Medicine also considered inner ear disorders as dysfunctions of Zang-fu organs and disturbances of qi and blood, but also as consequences of an assault by pathogenic factors or the imbalance of yin and yang. The kidney and liver were major culprits. 'If the kidneys are dysfunctional, the ears will be in bad condition'. 'If the liver fails to function normally, the eyes cannot look and the ears cannot listen'. Other inner ear disorders were assumed to have similar causes, as 'tinnitus and vertigo result from dysfunction of the liver' or from an 'insufficient upward flow of qi'. Consequently, treatment of ear diseases had to take into account the integration of the ear with Zang-fu organs, meridians and collaterals.

Chrysanthemum and Gallbladders: Treatment of Ear Disorders

Despite this holistic concept, specialization set in early even in ancient China, and Dr. Bian Que (407~310 BCE; fig. 3) is regarded as the first doctor of otorhinolaryngology and ophthalmology. According to the historical account *Shi Ji-Bian Que Cang Gong Lie Zhuan*, written by Si-ma Qian (145~86 BCE), 'when Bian Que passed by Luoyang [a city in today's Henan Province], he heard that the local people respected and took good care of old people. So he settled there to treat diseases of the ears and eyes and rheumatism.' Apparently, he must have found a large clientele among the aging population.

We may assume that Bian Que followed the overriding principle of Chinese medical theory in his practice, the holistic approach of 'aiming at the root cause of a disease'. For example, if deafness and tinnitus are caused by deficiency of 'kidney essence', a successful treatment must reinforce the kidney and nourish yin. How this could be accomplished practically was expressed in the book *Zhou Li*, published during the Western Zhou Dynasty

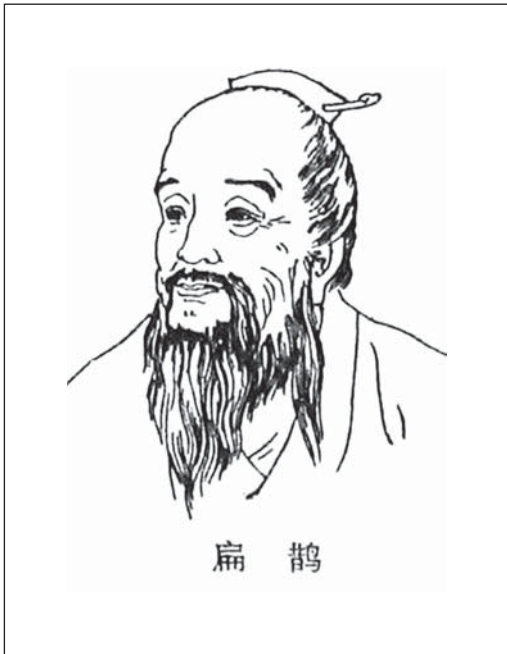


Fig. 3. The first otolaryngologist Dr. Bian Que (407~310 BC). From Shu X-C, Chen W-D: Encyclopedia (*Ci Hai*). Shanghai, Shanghai Dictionary Publishing House, 1999, p. 4482. Reprinted with permission.

(1100~771 BCE) as ‘treating diseases with five flavors, five grains and five herbs, distinguishing dead or alive by five qi, five sounds and five expressions.’ The concept of ‘fives’ is based on the ancient ‘Wu-xing’ theory that natural and abstract phenomena can be divided into five categories, for example five elements (fire, water, soil, metal and wood), five flavors (pungent, sweet, bitter, sour, salty), five directions (center, east, west, north, south). Based on this philosophy, TCM essentially never uses a single drug but complex mixtures and concoctions.

The choice of medication was guided by the understanding or assumption of the origin of disease, sometimes leading to considerable differences of opinion. During the Song, Jin and Yuan Dynasties, four schools emerged. The ‘school of cold and cool’ of Dr. Liu Wan-su (1120~1200 CE) considered ‘fire and heat’ the main causes of disease. Even such seemingly non-pyrogenic conditions as wind and cold, dampness and dryness, could ultimately manifest themselves as pathogenic ‘fire’. Therefore, drugs cold and cool in nature such as rhubarb, chrysanthemum, or honeysuckle were recommended. The ‘school of purgation’ of Dr. Zhang Cong-

zheng (1156~1228 CE) believed that all diseases were caused by exogenous pathogens invading the body rather than by internal disharmonies. He advocated expelling the pathogens by diaphoresis, emesis and purgation, a radical treatment that sometimes left his patients too weak to survive the disease. The ‘school of reinforcing the earth’ of Li Dong-huan (1180~1251 CE) held that ‘injuries to the spleen and stomach [which connect to the earth] will bring about diseases’. These injuries, caused by improper diet, overwork or stress, lowered the qi. Therefore he emphasized to invigorate stomach and spleen and raise qi with herbs including ginseng and bupleurum (thorowax, Hare’s ear). Finally, the ‘school of nourishing yin’, founded by Dr. Zhu Dan-xi (1281~1358 CE), believed that ‘yang is usually redundant, while yin is always deficient’. He encouraged nourishing yin and also criticized the common practice of applying medical formulations without regard for the specific disease. His approach must have been successful since his medications were said to be so effective as to cure an illness in a single dose. All these schools influenced otology with their opinions on etiology of diseases and their therapies.

A rather unique treatment for sudden deafness – yet linking the ear to one of its Zang-fu partners – was promoted by Ge Hong in the previously mentioned *Handbook of Prescriptions for Emergencies*. The ‘Mr. Ge Method’ cured sudden deafness in 3 days by placing the gallbladder of a mouse into the ear canal. More commonly, however, herbal remedies were employed.

Needles and Fire: Acupuncture and Moxibustion

Herbal remedies and dietary regimens were not the only prescriptions to re-establish harmony and heal the body and the spirit. Massage, acupuncture and moxibustion extended the palette of restorative treatments, aiming to liberate the powers of qi. A tympanum massage served such purpose for ear disorders, first advocated by Dr. Zhang Jie-bin (1563~1640 CE) in his *Jing Yue’s Complete Textbook (Jing Yue Quan Shu)*. ‘In case of sudden deafness or continuous dizziness due to shock, use your middle finger to massage the ear orifice gently; massage and loosen, or just vibrate the ear slightly, to let the qi pass through the ear. When the qi arrives, the ear will function normally again.’

Needling techniques and the heating of mugwort (common wormwood) on specific points of the body were

especially important as a means to connect directly with and influence the network of meridians and collaterals. Acupuncture and moxibustion can unobstruct these passages and harmonize the flow of qi and blood. The application of moxibustion may actually pre-date acupuncture, which supplemented the burning of the moxa stick probably after 200 BCE. Both methods have ever since held a prominent place in TCM. In otology, acupuncture of body points can alleviate chronic ear problems while ear acupuncture, stimulating certain acupoints on the auricle, can improve hearing loss, tinnitus and inflammation. The profile of the auricle is seen as a reversed fetus and as the external manifestation of converging meridians and collaterals from the Zang-fu organs (fig. 4). Spots on the auricle related to kidney, inner ear, hormones and occiput are favored acupoints to deal with ear disorders. Acupuncture can be augmented by moxibustion and also by water to inject additional medications.

Tinnitus has been a popular target of acupuncture, and suitable advice is found as early as in *Emperor Huangdi's Classic on Medicine*. The *Miraculous Pivot* suggests 'the insufficiency of qi upwards' as a cause of tinnitus and treatment by 'tonifying the lower point of the outer anklebone and leaving the needle there'. The eminent acupuncturist Dr. Huang-fu Mi (215~282 CE) developed acupuncture therapy for tinnitus further through his book *A-B Classic of Acupuncture and Moxibustion (Zhen Jiu Jia Yi Jing)*.

A Wedding of Two Cultures: Modern Times

The 20th century saw an ever increasing Western influence on China's medical practice and education. The first modern department of otorhinolaryngology and ophthalmology was established by the American physician Dr. Dunlap at the Union Hospital in Beijing in 1906 with 4 beds. Education in otorhinolaryngology started in the Special School on Medicine in Zhejiang in 1912, and Dr. Li Ting-zhi, director of the Department of Otorhinolaryngology at the International Peace Hospital at Yan'an Medical University, published the first textbook in otorhinolaryngology. By the 1940s, Western medicine had become mainstream and Dr. Jiang Si-chang (1913~2001 CE) is considered one of the pioneers of present-day otology in China.

This development also influenced TCM, which was flexible enough to absorb new knowledge. In turn, the emerging modern otology never spurned Traditional Chinese Otology. In 1956, the first contemporary Tradition-

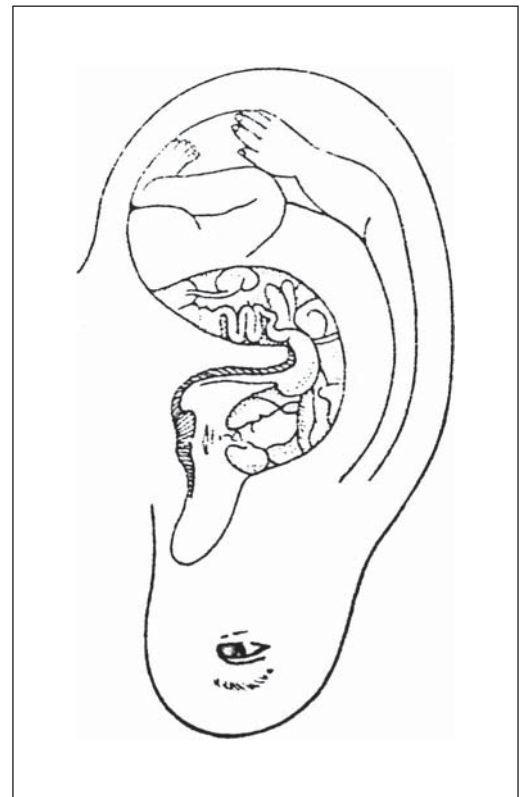


Fig. 4. Representation of ear acupoints. The idea of the ear as an inverted fetus guides the practitioner to the acupoints relating to specific organs. From Xiong D-J, Wang S: *Practical Traditional Chinese Medicine of Otorhinolaryngology and Stomatology (Shi Yong Zhong Yi Er Bi Yan Hou Kou Chi Ke Xue)*. Shanghai, Shanghai Publishing House of Science & Technology, 2001, p. 37. Reprinted with permission.

al Medicine schools were established in Beijing, Shanghai, Nanjing, Chuangzhou and Chengdu; the textbook *Traditional Chinese Otorhinolaryngology* and the *Encyclopedia of Medicine in China – Traditional Chinese Otorhinolaryngology and Stomatology* were published. The traditional ways gained renewed momentum with the foundation of The National Association of Traditional Chinese Otorhinolaryngology in Nanjing in September 1987.

TCM, an essential component of Chinese culture for more than five thousand years, is still practiced today. Ancient beliefs have given way to modern interpretations, but the holistic philosophy, emphasis on natural powers of healing and many ancient therapeutic methods

remain as its basic concept. Traditional and modern medicine continue to influence and complement each other and Traditional Chinese Otolaryngology remains an indispensable part of Chinese medicine.

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References

- Emperor Huangdi's Classic on Medicine (*Huang Di nei jing su wen*), 2 vols: *Basic Questions (Su Wen)* and *Miraculous Pivot (Ling Shu)*. Written between 770 and 221 BCE. Beijing, People's Medical Publishing House, 1956.
- Ge H (284–364 CE): Handbook of Prescriptions for Emergencies at Hand (*Zhou Hou Bei Ji Fang*). Beijing, People's Medical Publishing House, 1956.
- Huang-fu M (215–282 CE): Collation and Interpretation of A-B Classic of Acupuncture and Moxibustion (*Zhen Jiu Jia Yi Jing Jiao Yi*). Beijing, People's Medical Publishing House, 1979.
- Qian S (145–86 BCE): Historical Records (*Shi Ji-Bian Que Cang Gong Lie Zhuan*). Beijing, Zhonghua Book Center, 1959, pp 2785–2820.
- Tang Zong-hai (1884 CE): *Discussions on Blood (Xue Zheng Lun)*. Shanghai, Shanghai ren min chu ban she, 1977.
- Zhang J-B (1563–1640 CE): Jing Yue's Complete Textbook (*Jing Yue Xue Quan Shu*). Shanghai, Shanghai Publishing House of Science & Technology, 1959.
- Zuo Qiuming (attributed, 5th century BCE): Commentary on the Spring and Autumn Annals (*Zuo Zhuan*). Changsha Shi, Hunan ren min chu ban she, 1996.