

## **Kuhn and the Two Cultures of Western and Chinese Medicine**

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**Abstract:** Western medicine and Chinese medicine are different systems that have been influenced by the cultures and scientific traditions from which they developed. Each contains its own set of Kuhnian paradigms. Though possessing some superficial and structural similarities, these paradigms are in fact quite different. The longevity of traditional Chinese medicine as an ancient method of healing may be related to its compatibility with Eastern cultures that view the world in more holistic terms.

**Key Words:** Chinese medicine, Western medicine, paradigms, syndromes

Why has traditional Chinese medicine (TCM) survived and flourished after its erstwhile Western counterpart, Galenic medicine, has long disappeared? Is TCM no more than a folk medical practice, lacking in the rigours of modern science and incompatible with the scientific culture of modern medicine? Such questions have been asked since the 1930s in China when a major debate erupted over the scientific basis of Chinese medicine and a proposal was made for its total replacement by Western medicine. The debate has never been settled and indeed was revived with some vigour in recent years.<sup>1</sup>

One difficulty in the debate over Chinese medicine was agreement on what counts as “scientific”. There appear to be no consensus among philosophers of science on this issue, but for the purpose of this paper I use that term in a way suggested by Thomas Kuhn, that a science must have conclusions that are “logically derivable from shared premises” and are testable.<sup>2</sup>

I address the questions raised earlier on TCM by viewing models and standard examples in medicine as “paradigms”, a term used in a special way by Kuhn (1970), and by comparing the “paradigms” of the Chinese and Western medicines. I have chosen to talk about paradigms in medicine rather than theories because I believe paradigms provide more satisfactory explanations for how medicine is practiced. For one thing, paradigms more closely incorporate cultural differences of those who subscribe to them. I have borrowed Kuhn’s framework for the nature of scientific explanation and scientific revolution, recognizing that many of his ideas remain controversial.

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<sup>1</sup> See, for example, Qu (2005) and Needham (2004: 65-66).

<sup>2</sup> Kuhn (1977), 276, n21.

My approach to explaining science of the kind found in TCM models and concepts may help to illuminate the controversy between, on the one side, those Western scientists under the influence of philosophical realism and Popperian notions of science who view TCM as pseudo-science akin to astrology, complete with meaningless metaphysical entities and, on the other side, defenders of TCM who declare that TCM is simply a different “paradigm”, incommensurable with Western medicine and therefore not understood by Western doctors and scientists.

It is tempting to view this divide as akin to that between the two culture of C.P. Snow but, as I shall demonstrate, neither system of medicine is a paradigm *per se* in the way the later Kuhn used the term. More correctly, each system of medicine has its own set of paradigms, and the two systems in fact have some paradigms in common. I argue that it is possible for a person educated in modern science to practise TCM as a method of healing without conflict with his commitment to science. Some scientists and philosophers would find my approach unappealing: the naïve scientist steeped in the ideology of observability and testability would find TCM entities akin to fiction; the philosophical realist would find these same entities incapable of being defined by mathematical equations and parameters, or possessing of consistent observable correlates. Nevertheless, I hope that my approach will go some way to assuring both groups that the TCM is an empirically-based discipline that uses many of the methods of science whilst maintaining consonance with its cultural and philosophical origins. Most people of Eastern cultural origin, and some in the West, have little problem accepting its methods and deriving therapeutic and health benefits from its practice. It is indeed a different culture form Western medicine, and any attempt to assert the scientific superiority of one over the other may just be barking up the wrong tree. What would ultimately be more relevant is whether patients with illnesses feel better using one or the other as the method of therapy.

### **Medical Systems and Kuhnian “Paradigms”**

The term “paradigm” acquired new meanings after Thomas Kuhn’s *The Structure of Scientific Revolution* first appeared in 1962. *Structure’s* contribution to the philosophy of science has been a matter of controversy. Following an historic encounter with critics including Karl Popper at the 1965 London School of Economics conference, Kuhn’s views underwent several stages of metamorphosis, from re-defining the term in the 1969 postscript to *Structure*, to wishing to dispense with the term “paradigm” in “Second Thoughts on Paradigms” (1974) of his Princeton days, and finally to the unfinished thoughts in his final interview recorded in Athens in 1995.

Kuhn himself never used the term “paradigm” for the theories, models and practices of medicine, although others have done so in various ways, not only for modern medicine but also for ancient medical systems.<sup>3</sup> The later Kuhn of *The Essential Tension* (1977) was concerned with the

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<sup>3</sup> For example, Unschuld refers to the “paradigms of systematic correspondence” in ancient Chinese medical theories when describing the yin-yang doctrine and the five-phase model. Harvey’s discovery of the circulation of blood was seen as providing a new paradigm in physiology, replacing Galen’s model of blood and pneuma flow and contributing to the rise modern medicine. See Unschuld (1985), 57 and Quin (1997), 225-6. Medical scholars in China, criticized for dealing in unscientific theories,

confusing uses to which the term “paradigm” was put by both supporters and detractors of *Structure*, and with Masterman’s complaint that there were some 21 uses of the word “paradigm” in *Structure*.<sup>4</sup> Kuhn went on to limit it to two uses, the “disciplinary matrix” and the “exemplar”. The disciplinary matrix is global, “embracing all the shared commitments of a scientific group”; the exemplar “isolates a particularly important sort of commitment”. The exemplar is therefore a subset of the disciplinary matrix.<sup>5</sup>

The disciplinary matrix includes most or all of the objects of group commitment described in *Structure* as paradigms or paradigmatic. Four of these objects were highlighted by Kuhn: 1. symbolic generalisations (e.g. the Newtonian law of motion  $f = ma$ ); 2. models, which provide preferred analogies such that of gas as a collection of billiard balls in random motion; 3. shared values, such as the value that predictions should be accurate and preferably quantitatively expressed; and 4. exemplars.<sup>6</sup>

Exemplars are a scientific community’s standard examples, and they illustrate the main use of the term “paradigm” in *Structure* for laws, theories, applications and instrumentation providing models from which spring traditions of scientific research. Among the exemplars that Kuhn cited were Newtonian mechanics and theory of gravitation, Copernicus’ theory of the solar system, and the theory of oscillations as exemplified by the pendulum. Kuhn emphasized that exemplars were the “central function” of the use of the term “paradigm” in *Structure*, and would have preferred that the term “paradigm” be used only to mean the exemplar.<sup>7</sup> In this essay, I follow Kuhn’s preference and use the term “paradigm” exclusively for the exemplar. But the reader should be aware that many people continue to use the term “paradigm” to refer to other things, including disciplinary matrices.

On the scientific nature of the paradigm (exemplar), Kuhn dramatically recounts at his final interview held in Athens how Margaret Masterman’s cryptic remark, “a paradigm is what you use when the theory isn’t there”, was dead on the mark: “And I sat there, I said, my God...she’s got it right!”<sup>8</sup> Real science, some would contend, is paradigmatic through and through.<sup>9</sup> So is medicine. There is a lack of agreement among medical scientists on the cause of disease, on the definition of health, and on the best route to take for dealing with many non-infectious illnesses. A casual survey of medical literature shows that they do not agree even on the causes of

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sometimes seek refuge in the dubious proposition that Chinese and Western medicines are simply incommensurable paradigms. See He (2005) and Wang (2003).

<sup>4</sup> Kuhn (2000), 300.

<sup>5</sup> Kuhn (1977), 94.

<sup>6</sup> Kuhn (1970), Postscript 181-191; Kuhn (1977), 306-307.

<sup>7</sup> “Second Thought on Paradigms”, Kuhn (1977), 307, n16.

<sup>8</sup> Conant and Haugeland (2000), 300.

<sup>9</sup> “A weaker version of this thesis ... would claim that there is an established theoretical core to science, and it is only at the frontiers of research that, by definition, theory is somehow insufficient, and therefore paradigmatic examples are needed to guide problem solutions. Kuhn’s stronger version is that the extensive agreement amongst scientists indicates that they do not even have to agree on this theoretical core; science, real science, is paradigmatic through and through.” Forrester (2007), 818.

conditions like cancer, gastric ulcers and coronary thrombosis, or the best routes to take for their treatment.<sup>10</sup>

Systems of medicine would appear to have within them disciplinary matrices and paradigms as described by Kuhn. Cardiologists might fit Kuhn's description of "a particular community of specialists" characterized by "the fullness of their professional communication and the relative unanimity of their professional judgments", sharing a "disciplinary matrix" which "refers to the common possession of the practitioners of a particular discipline".<sup>11</sup> Within the disciplinary matrix can be found paradigms, models, values and symbolic generalisations described by Kuhn. The paradigms would include the blood circulation model in the human body, the immunological system, and theory of the role of blood cholesterol in vascular plaque formation.

Likewise, the methods of diagnosis and therapy in TCM, viewed as a disciplinary matrix, are linked to a number of paradigms (exemplars) comprising rules and explanatory models drawn originally from ancient texts, such the models of *yin-yang*, the five phases and the meridians used in acupuncture, though now subject to modern interpretation.

## Models and Analogies

Models play key roles in Kuhn's disciplinary matrices and paradigms. For Kuhn, human cognition is governed fundamentally by rhetorical relations of similarity, metaphor, analogy and modeling rather than by rules and logic.<sup>12</sup>

The use of theoretical models in science has traditionally attracted greatly disparate views, ranging from that of Duhem, Mach and others that models are merely dispensable aids to theory construction and can be "detached and discarded when the theory is fully developed" to the position, enunciated by Campbell, that models are analogies that are essential parts of theories, as in the case of the theory of gases which uses the model of point particles moving at random in the vessel containing the gas.<sup>13</sup>

In the social sciences, particularly in economic science, models are extensively used to describe idealized situations that approximate to real economic conditions at particular places and times. Adam Smith's model of perfect competition, for example, holds true by virtue of the conditions defined for perfect competition to exist (free markets, no state intervention, perfect information, and the absence of transactions costs).

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<sup>10</sup> For example, the use of chelation for coronary blockages, contending theories on the causes of atherosclerosis, and the causes of and appropriate treatments for various forms of cancer.

<sup>11</sup> Kuhn (1970), 182.

<sup>12</sup> As Nickles (2003:8) points out: "Scientific thinking does not consist in applying purely logical rules so much as matching present perceptions and problems to domain-specific exemplars; and a great deal of scientific work consists in the construction and use of models."

<sup>13</sup> Hesse (1967), 357.

It is not always clear that a distinction can be drawn between a theoretical model and the theory of which it is a model. As Hesse points out, the model of the DNA molecule is practically synonymous with the theory of the molecular structure of the DNA: “it is not clear that there is any formal theory of which (the DNA molecule) is a model; the presumption is that a wave mechanics adequate to describe such complex structures as organic molecules would be such a theory. This example indicates that in science, unlike logic, the notion of model is not dependent on prior development of a formal theory.”<sup>14</sup>

There is a limited sense in which models are true by definition, just as an ideal gas is by definition just what behaves in accordance with the ideal gas law.<sup>15</sup> This is not to say that the model states a tautology, but rather that it states an ideal and we postulate that certain natural phenomena approximate to it closely. Its usefulness must be measured by its ability to explain phenomena satisfactorily and its success in predictions. A simple harmonic oscillator is an idealized model system, basically a definition. When we relate it to real-world systems, as when we say that the motion of a pendulum is simple harmonic, in practice that is a good approximation.

Models in medicine are of this genre. For example, the modern physiological model of the excretory system of the human body comprises the kidney and bladder, which removes urea, salts and water; the lungs, which remove carbon dioxide; the skin, which removes urea and water through sweat glands; and the large intestine, which removes solid waste. This is true by definition as all materials removed through these channels are “excretions”. The same can be said of the digestive, respiratory, circulatory, immunological systems. These models were arrived at through the study of anatomy and laboratory experiments on physiological processes; their accuracy increases over time as they are improved to incorporate new findings of the functioning of the human body. As we shall see later, TCM has an equivalent albeit simpler set of models based, not on the human anatomy, but its own system of functional taxonomy.

## **Paradigms of Western Medicine**

Western medicine evolved from distant antiquity before the *Hippocrates Corpus* (circa 350BCE). A paradigm shift occurred when disease and their cures, previously thought to be linked to spirits, demons and the Gods, were regarded as disorders caused either by external environmental factors or internal disruptions within the body. *The Nature of Man*, for example, states:

When a large number of people all catch the same disease at the same time, the cause must be ascribed to something common to all and which they all use; in other words to what they all breathe...However, when many different diseases appear at the same time, it is plain that the regimen [that is, diet and exercise] is responsible in individual cases.<sup>16</sup>

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<sup>14</sup> *ibid*, 356

<sup>15</sup> Rosenberg (2000), 99.

<sup>16</sup> Lloyd (1983), 22-23.

This insight presaged the distinction in modern medicine between diseases caused by infectious and environmental factors and illnesses caused by factors internal to the body

The medical sect known as the Methodists provided the dominant medical theory for the Roman world for at least three centuries from the time of its putative founder Themison (123-43 BC) to the time of the emperor Marcus Aurelius (161-180 AD) and beyond.<sup>17</sup> Hippocratic medicine had earlier tied together the seat or the part affected by disease and the etiological theory supposed to explain the disease, thereby allowing the physician to ascertain indications for therapy. As a result, conventional diseases diagnosed by Hippocratic medicine were “at once nebulous and rigidly compartmentalized”.<sup>18</sup> The Methodists created a paradigm shift in Greco-Roman medicine by rejecting this epistemological approach and insisting that good medicine was simply effective therapeutic practice and it was not necessary to search for the hidden causes of disease.<sup>19</sup> Thus Methodists spoke of “affections” (*pathe*) rather than disease (*nosoi*), having in mind forms of *koinotetes* rather than disease entities in the traditional sense. They were free from etiology, and were convinced that a good doctor should never concern himself with the causes of disease.<sup>20</sup>

Galen (129-216CE), whose ideas were to dominate Europe up to the end of the 16<sup>th</sup> century, rejected Methodism. He drew inspiration instead from Aristotle and the *Hippocratic Writings* to view organized bodies, like bodies of nature, as composed of the four elements of fire, water, earth and air, while the four qualities of these four elements are heat, moisture, dryness and cold. Disease consists in abundance, scarcity or change taking place in the humours, comprising blood, phlegm, and yellow and black bile. Hence diseases are classified according to which humour is in excess, scarcity, or suffers a defect in its movements and accordingly requires a different therapeutic means.<sup>21</sup>

Ancient and medieval medicine in Europe were focussed on understanding the conditions of human bodies in the grip of disease, the progression of these conditions (pathogenesis), and appropriate therapies for healing. There was less emphasis on epistemological issues of causation – what made the patient to fall ill in the first place. Before the 19<sup>th</sup> century, the notion of disease causation in Europe revolved largely around moral and social factors. Etiological discussions of most diseases included references to such factors as drunkenness, intemperance, gluttony, and dissipation. In his account of diabetes, for example, Bardsley (1845) identified causes like indulgence in excessive amounts of cold fluid when the system has been over-heated by labour or exercise, poor living, sleeping out the whole of the night in the open air in a state of intoxication, checking perspiration suddenly, mental anxiety and distress.

The Scientific Revolution of 16-17<sup>th</sup> century Europe laid the groundwork for transformations in

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<sup>17</sup> Nutton (2004), 188.

<sup>18</sup> Tecusan (2004), 10.

<sup>19</sup> Nutton (2004), 190.

<sup>20</sup> Tecusan (2004), 4, 10-11.

<sup>21</sup> Nutton (2004), 202-215; Cumston (1926), 137.

the classical and mathematical sciences and the introduction of Baconian experimental science that would have profound effects on science and medicine. Kuhn saw a systematic merging of the classical and the experimental sciences in the 19<sup>th</sup> century – “the mathematization of a number of Baconian fields” – for example, the transformation of the Baconian science of heat into an experimental-mathematical thermodynamics.<sup>22</sup> In the second half of the 19<sup>th</sup> century, systematic experimentation also took root in medicine, particularly in physiology, and the profession of medicine “gained new institutional forms, more rigid and with intellectual standards more exclusive than any they had known before.”<sup>23</sup> Scientific medicine took a large step forward, leveraging state resources for scientific research.

The French Revolution and its aftermath moved hospitals from the Church to the State and saw the emergence of Paris hospital medicine “characterized by scientific observation and raised on pathological anatomy, the paradigm of the lesion, quantification and, not the least, sublime faith in its own superiority.”<sup>24</sup> This paradigm shift from holistic stress on humoral balance to the new “anatomico-pathological” model would eventually lead to the pathbreaking discoveries of modern etiology.

A major step forward was made with research on childbed fever (*puerperal sepsis*), common in the 18<sup>th</sup> and early 19<sup>th</sup> centuries. In 1846, Semmelweis’s observations of mortality rates of women after childbirth under various hygiene conditions led to the conclusion that childbed fever was caused by decaying matter. Semmelweis used a hypothesis-testing methodology to infer that childbed fever was caused by putrid matter derived from living organisms: “In order for childbed fever to occur, it is a *conditio sine qua non* that decaying matter is introduced into the genitals...every case of childbed fever, without a single exception, *has only one cause*, namely incorporation of decaying organic matter.”<sup>25</sup> Some 40 years later, a monocausal model of disease was proposed by Pasteur and Koch who had ushered in the age of bacteriological discovery with the isolation of the tubercle bacillus. The key ideas were captured in the paradigm of the Henle-Koch Postulates which stated that the parasite occurs in every case of the disease in question and occurs in no other disease as a fortuitous and non-pathogenic parasite<sup>26</sup>. Koch called this approach to disease causation “*the etiological standpoint*”, which Carter characterizes as “the belief that diseases are best controlled and understood ...by causes that are universal and necessary”.<sup>27</sup>

Bacteriology opened up the vision of finding biological agents to destroy them. The notion of “antibiosis” – one kind of organism driving out another in a Darwinian survival process – gave a lead to research for antidotes, and eventually to Fleming’s development of the antibiotic penicillin, a natural by-product from moulds.

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<sup>22</sup> Kuhn (1977), 63; Sakar and Pfeifer (2005), 268.

<sup>23</sup> Kuhn (1977), 60.

<sup>24</sup> Porter (1999), 306.

<sup>25</sup> Hempel (1967), 3-8; Gyory (1905), 94.

<sup>26</sup> Evans (1993), 30.

<sup>27</sup> Carter (2003), 1.

The use of antibiotics to combat disease-causing bacteria was a new paradigm in curing disease. Using medicines that destroy bacteria instead of allowing the body to overcome it with its own defences was a radical departure from Galenic medicine (and Chinese medicine) that used medicine to restore balance or to resolve internal obstructions.

By the beginning of the 20<sup>th</sup> century, the etiological standpoint in its wider sense drove much of medical research. However, other important diseases defied such explanations. One such disease was beriberi, whose cause required a new deficiency theory of disease. The etiological standpoint had to be widened to include deficiency of certain organic chemicals essential to the body.

Viruses also presented a new set of problems. Although the existence of viruses was discovered in the late 19<sup>th</sup> century, it was not until the first half of the 20th century that the influenza and polio viruses were isolated and cultured, and not till the second half of that century that large numbers of disease-causing viruses were isolated. With viruses, medical scientists found that causes of disease were more complex and less definitive than could be explained by the simple etiological standpoint of Koch. For example, rhinoviruses are associated with only 20-25% of the common cold syndrome and are active mostly in the fall. Furthermore, many viral infections are asymptomatic. Viruses are also thought to be linked to some forms of cancer, and probably play a role in the induction of about 10% of all fatal malignancies in the US. Looking at the broad range of diseases, a single cause can result in a spectrum of clinical syndromes, and the same effect could result from several different causes, depending on the nature of the causative agent, the environment in which it operates, and the characteristics of the involved host. In the case of chronic (non-infectious) illnesses like heart disease, the complexity is such that epidemiologists prefer to talk about “risk factors” rather than causes.<sup>28</sup>

The situation gets more complex with subclinical epidemiology. Subclinical illnesses occur not only in infectious diseases, but also in chronic diseases. The occurrence of infection without disease is also well recognized in subclinical infections. A multitude of new virological, immunological and genetic advances yielded new insights into pathogenesis. The noted Yale epidemiologist Evans concludes: “Many of the causes of disease are so ubiquitous that almost everyone has been exposed to them...What then makes disease develop in some who have been exposed, but not in others? It is the search for a clinical illness promotion factor, ‘a third ingredient’, that I urge epidemiologists to pursue. It may be external or internal to the host, it may vary from disease to disease, and it may vary within a single disease in various epidemiological settings”).<sup>29</sup> This recognition of the complexities of disease causation, represents a paradigm shift from the etiological standpoint of Koch. Philosophers of medicine have since developed “causal pie” and other models to attempt to deal with complex disease causation.<sup>30</sup>

Another important Western paradigm is “evidence-based medicine” (EBM), which emphasizes

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<sup>28</sup> Evans (1993), 1, 46, 107.

<sup>29</sup> *ibid*, 213.

<sup>30</sup> Rothman (2002), 10.

the use of randomized controlled trials for testing the efficacy of therapies.<sup>31</sup> Although not without its methodological problems<sup>32</sup>, EBM has become standard procedure for new drugs and new therapeutic methods

Other paradigms of Western medicine include surgery, which repairs body parts and removes lesions and tumours, and chemotherapy which uses chemical substances to attack abnormal cells associated with cancerous tumours. Neither surgery nor chemotherapy are to be found in TCM which, like Greek medicine, emphasizes internal balance and removal of obstructions as the way to recover from illness.

## Paradigms of Traditional Chinese Medicine

Like Greek medicine, Chinese medicine in distant antiquity was dominated by the belief that illness was caused by spirits and demons and required the intervention of witches and mediums to effect cures. A paradigm shift occurred in the Han dynasty (206 BCE-200 CE) when the medical classic *Huangdi Neijing* (*The Yellow Emperor's Canon of Medicine*) made a break with this tradition by refusing to attribute disease causation to numinous agents. The *Neijing* focused instead on environmental conditions and emotional factors as the causes of illness and the importance of natural laws in their explanation.<sup>33</sup> In particular, the *Neijing* brought to medicine the ancient Chinese philosophical ideology of “systematic correspondence” by which all tangible and abstract phenomena could be categorized as manifestations of the *yin-yang* principle and the five-phase model.<sup>34</sup>

Different schools of thought introducing new paradigms flourished from the Han dynasty to modern times, but they shared some core paradigms which comprised, besides the *yin-yang* principle and the five-phase model, the related five-organ system (*zangxiang* 藏象), the system of channels and collaterals (meridians), and the central role of *qi* in human health and body processes.<sup>35</sup>

*Shanghan Lun* (*Treatise on Febrile Diseases*) by the legendary late-Han physician Zhang Zhongjing (150-219) postulated that harm caused by climatic influences such as cold (“cold damage”) and dampness travelled along (acupuncture) meridians and brought about progressive stages of pathogenes.

The Song dynasty (960-1279) saw the emergence a Neo-Confucianism that absorbed concepts of Daoism and Buddhist and stimulated the development of new medical doctrines. Late Song and the ensuing Jin-Yuan dynasty saw vigorous contention among “a hundred schools” of medical thought. Among the influential schools were those associated with Liu Yuansu (1120-1200) who

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<sup>31</sup> Guyatt et al. (1992), Shahar (1998), 277.

<sup>32</sup> Worrall (2002).

<sup>33</sup> Unschuld (2003), 319.

<sup>34</sup> Unschuld (1985), 5, 54.

<sup>35</sup> Ren Yinqiu (1986: 5-6), who started the study of “schools of thought in medicine” (中医各家学说) in the 1950s, emphasizes that contending schools did not depart from the core models of the *Neijing*.

founded the “school of cooling” (*hanliang pai* 寒凉派), which stressed cooling the body to overcome the tendency to excess heat; Li Gao (1180-1251) who regarded the digestive system as the fundamental basis for good health, hence founding the “spleen-stomach school” (*piwei pai* 脾胃派); and Zhu Danxi (1281-1358) who founded the “yin-nourishing school” (*ziyin pai* 滋阴派) which claimed that man’s body by nature tends to be deficient in *yin*, hence nourishing *yin* must be the basis of good health. These contending schools introduced competing paradigms in Chinese medicine that were in tune with the times and places in which they flourished.

Late Ming and early Qing saw further development of medical thought, notably studies of infectious diseases common in spring and summer in the south by the “warm disorders school” (*wenbing xuepai* 温病学派) led by Wu Youxing (1582-1652). This was a competing paradigm to the cold-damage model of the *Shanghan Lun* from the Han dynasty. Understandably the former was more appropriate to “delicate southerners” in warmer regions and the latter to “robust northerners” of China.<sup>36</sup>

In the dying decades of the Qing dynasty, China suffered humiliation by foreign powers which annexed territories and extracted war indemnities. Shortly after the founding of the Republic in 1912, the May 4<sup>th</sup> Movement of 1919 marked an historic turning point when the country adopted Western science and technology as the only practical way of strengthening itself.<sup>37</sup> From the 1920s, young scholars returned from studies abroad with the mission to modernize Chinese science. Chinese medical paradigms came under attack for being unscientific. In 1929 a Japanese-educated Western doctor Yu Yan 余岩 in the government health administration called for the abolition of Chinese medicine. This met with a robust response from Chinese physician and scholar Yun Tieqiao 恽铁樵. A stormy debate ensued.<sup>38</sup> Western-trained scientists followed a line of thinking similar to that of logical positivists in Vienna and Karl Popper in Vienna/London, deeming unobservables in Chinese medicine as metaphysical hence meaningless and Chinese medical theory to be unverifiable (or unfalsifiable) hence unscientific. Chinese physicians defended their profession by citing its successful clinical record and appealing to the wisdom of ancient Chinese philosophy on which it was based. The first defense was difficult for Western doctors to dismiss, as many of them acknowledged *prima facie* evidence of the efficacy of some Chinese medications and of acupuncture. But they insisted that the efficacy of Chinese methods be subjected to the rigours of Western evidence-based medicine. Invoking the wisdom of an ancient philosophical system, however, convinced few detractors.

The debate was interrupted by civil war (1935-49) that culminated in the ascendancy of Mao and the founding of the People’s Republic of China in 1949. Early in his rule, Mao directed that the country should preserve the “treasure trove” of Chinese medicine and modernize it by absorbing relevant knowledge from Western science and medicine.<sup>39</sup>

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<sup>36</sup> Hanson in Hsu (2001), 262-292.

<sup>37</sup> Schwartz (1986).

<sup>38</sup> Qu (2005) and Lei (1999).

<sup>39</sup> Taylor (2005).

Chinese medicine henceforth became known as “Traditional Chinese Medicine” (TCM) to refer to the state-sanctioned practice of Chinese medicine.<sup>40</sup> It was “traditional” only in the sense of having originated from the classics of Chinese medicine and being a different system from modern Western medicine. But in fact it was a new system that reflected the social and political milieu of modern China.

Following Mao’s edict to modernize TCM, textbooks were written in plain Chinese prose (*baihua* 白话) as distinct from terse formal classical Chinese, systematically laying out the principles of TCM for the training of a new generation of Chinese doctors, in contrast to the old way of apprentices memorizing the classics and learning at the foot of experienced practitioners. These texts were written by hand-picked leading scholars, mostly from TCM colleges set up for the first time in Beijing, Chengdu, Guangzhou, Nanjing and Shanghai.

The first national textbook appeared in 1958, titled *Outline of Chinese Medicine (Zhongyixue gailun 中医学概论)*.<sup>41</sup> It was superseded by other specialized texts covering foundational theory, diagnostics, acupuncture and moxibustion, *material medica*, prescriptions, internal medicine, pediatrics, gynecology, skin diseases so forth. The structural similarity of these textbooks to their Western medical counterparts was obvious and deliberate. The textbooks constituted a massive systematization of medical theory and practice, the first to appear in Chinese history.

Regulation of TCM practice is by licensing of medical practitioners at the state level with common national examinations. Prescribed textbooks currently comprise a series published by Shanghai Science and Technology Press 上海科技出版社, which have also been adopted in Hong Kong and Singapore. Chinese medicine as practiced in Taiwan and Malaysia follows a similar pattern, as does Korean medicine, basically an indigenized version of Chinese medicine.<sup>42</sup> [In this paper, I have used *Basic theory of Traditional Chinese Medicine* published in a Chinese-English bilingual version by the Shanghai University of Chinese Medicine as a reference (Wu, 2002).]

TCM colleges in China require about 40% of the student’s time be spent on studying Western medicine. Degree graduates can practice basic Western medicine in addition to TCM: he can read modern diagnostic test results, prescribe Western drugs and perform simple surgical procedures. Researchers in Chinese medical colleges publish in academic journals, and there are extensive Master and doctoral programs. While the academic rigour of research and publications on TCM has yet to catch up with those of leading Western medical institutions, the existence of these programs and publications is testimony to a decisive paradigm shift: the recognition that the theories and therapies of TCM can be put to tests used in evidence-based medicine rather than just invoke the authority of ancient Chinese philosophy.

Referring to the simplification and systematization of Chinese medicine over the last two

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<sup>40</sup> *ibid*, ch.4. Scheid (2002:3) avoids this term because he thinks it implies Chinese medicine is unchanging.

<sup>41</sup> Scheid (2002:74). A 1972 text *The Revised Outline of Chinese Medicine* 新编中医学概要 was translated by Sivin (1987).

<sup>42</sup> Kim (2006) prefers to use the general terms “East Asian medicine” for Chinese, Korean and Japanese medicines.

millennia, Sivin opines that such change had been “most decisive over the past generation, with unmistakable influence from modern medicine.”<sup>43</sup> Scheid (2002) notes that the transition was not without its controversies and contends that despite the apparent uniformity forced upon the TCM community by state-sanctioned textbooks and clinical practices, there remains a plurality of views among scholars and practitioners. Scheid’s observation is especially pertinent considering conservative scholars like Liu Lihong (2003) who, despite having undergone training in systematized TCM, regard the classics as the ultimate authority on medicine and modern systematized TCM as having been adulterated and distorted by Western interpretation.

The decisive move towards systematic formalization of Chinese medical theory and the education of TCM physicians in Western medicine constituted a deep paradigm shift with far-reaching consequences for the future direction of TCM. Perhaps the most important new paradigm to emerge was the principle of *bianzheng lunzhi* 辨证论治 which literally means “syndrome differentiation and consideration of the appropriate therapy accordingly”. It involves classifying the pathological conditions of the body (such as depletion and repletion) through its external manifestations and determining the treatment accordingly.<sup>44</sup>

## Paradigms of Contemporary TCM

Among the paradigms (exemplars) of contemporary TCM, I choose seven that are most relevant for comparison with those of Western medicine.

1. The *Yin-Yang* Principle
2. The Five Phases Model
3. The Organ Systems
4. The Mind-Body Relationship Model
5. Channels and collaterals (“meridians”)
6. Basic entities in the body – *qi* 气, *jinye* 津液 and blood
7. Diagnosis and treatment of syndromes (*bianzheng lunzhi*)

1. The **yin-yang principle** lays out the dynamics of *yin* and *yang* characteristics in the body. They reflect the intrinsic duality of nature: *yin* is soft, dark, cool, wet, and subtle, whilst *yang* is hard, bright, warm, dry and transparent. *Yin* and *yang* oppose and restrain each other, but are also interdependent. Harmony in nature requires that they be in balance. These relationships are captured in a symbol that shows *yin* (in black) and *yang* (in white) wrapped around each other, mutually dependent for existence, but restraining each other (Figure 1).

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<sup>43</sup> Sivin (1987), 124.

<sup>44</sup> *Bianzheng lunzhi* is not dealt with in older works on TCM written in the West because it did not appear in Chinese medicine as a core paradigm until the systematization of Chinese medicine in the 1950s. Scheid (2002:106-115) notes its “non-existence” before 1950, although similar ideas were already there since early times.

## Yin Yang

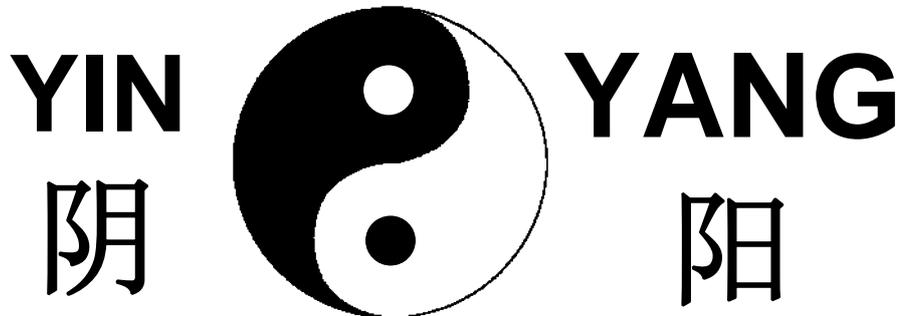


Figure 1

2. The **five-phase model** (*wuxing* 五行), also known as the “five-element” model, was borrowed from ancient Chinese cosmology and moral theory, relating five basic functions represented by wood, fire, earth, metal and water.<sup>45</sup> The succession sequence consists of one activity producing the next (*xiangsheng* 相生): wood produces fire, which produces earth, and so on (Figure 2). There is also a notion of restraint (*xiangke* 相克) for every other phase (two phases apart): wood restrains earth, fire restrains metal, etc. The permutations of production and restraint define relationships among the five phases.

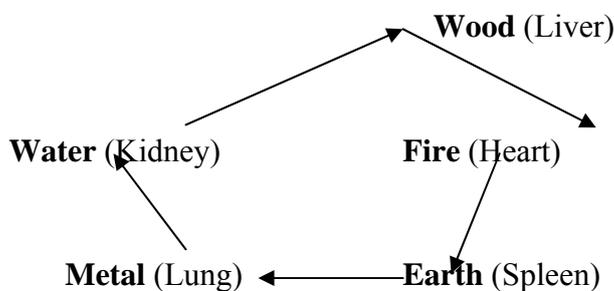


Figure 2 The Five-Phase Model

3. The **Organ Functional Systems** model (*zang xiang* 臟象) divides *physiological functions* of the body into five groups, each named after an anatomical organ: the liver, heart, spleen, lung and kidney functional systems. Each of these systems has a number of functions associated with it and, while they have some similarity to organ functions in Western medical physiology, they are in fact quite different. For example, the “spleen” system covers the digestive functions of the

<sup>45</sup> See Lloyd and Sivin (2002), 259-261 and Needham (1978), 254-261 for differing moral and cosmological theories of the origins of the five-phase model.

body; the “kidney” system is involved in excretion but also in sexual functions, growth and ageing.<sup>46</sup> The five systems constitute a taxonomical model corresponding to the five-phase model. By relating each organ system to one of the five phases (for example, the liver to wood, and the heart to fire – see Fig 2), the model defines the dynamic interactions of the five organ systems, strengthening and restraining one another to maintain body balance.

4. The **mind-body relationship model** is a core paradigm of Chinese medical theory. It associates each organ system with a specific emotion that harms it: anger harms the liver, grief the lung, fear the kidney, anxiety the spleen, and excessive joy (indulgence) the heart. Combined with climatic influences like heat, cold, dampness, dryness and wind, they constitute the fundamental causes of illness (pathogens) as laid out in the *Neijing*. Modern TCM texts now add germs, toxic chemicals and poor diet to the list.

5. The **channels and collaterals** (“meridians”) are a network that connect the organ systems and also transmit external influences (including acupuncture needle stimuli) to the internal organs. The physical nature of these meridians has been a matter of intense research but has never been satisfactorily elucidated. Lu and Needham report that attempts to demonstrate a physical or sub-anatomical substratum for the system were inconclusive<sup>47</sup>. Leung et al cite other hypotheses, including one postulating them as low electrical impedance paths.<sup>48</sup>

6. Of the **three basic entities** in the body<sup>49</sup>, *qi* is the most complex and multi-faceted. It flows along the body surface to protect it against hostile influences and works within organs to bring about digestion and metabolism. It is also an agency of transmission that connects mind and body. Thus, when a person is angry, *qi* carries the emotion to his liver to cause damage. Generally, any kind of change or movement in the body involves *qi*. If *qi* is blocked, this results in repletion; if *qi* is deficient, the body suffers from depletion.<sup>50</sup> *Jinye* is a general term for dispersed body fluids, covering all normal moisture and fluids in the body.<sup>51</sup> “Blood” in TCM has nourishing functions and bears a close relationship to *qi*: blood produces *qi*, and *qi* drives blood.<sup>52</sup> Deficiency and stagnation of blood are pathological depletion and repletion conditions respectively.

7. **Diagnosis and Therapy based on Syndromes**: The foregoing six paradigms are interlinked and integrated into the overarching doctrine of *bianzheng lunzhi*, or “syndrome differentiation and therapy determination”.

The term “syndrome” has a different meaning from that used in Western medicine.<sup>53</sup> It is the standard translation for “zheng” 证 (as in *bianzheng lunzhi*) in bilingual Chinese textbooks.<sup>54</sup>

<sup>46</sup> This system is combined with another set of viscera which complements it; in this abbreviated treatment, we do not go into the details.

<sup>47</sup> Lu and Needham (1980), 186.

<sup>48</sup> Leung, et al (2003), 176-177.

<sup>49</sup> Wu (2002), 102-129.

<sup>50</sup> Kuriyama (1999), 221.

<sup>51</sup> Sivin (1987), 243.

<sup>52</sup> Wu (2002), 124-126.

<sup>53</sup> Oxford (2007): “a combination of signs and/or symptoms that forms a distinct clinical picture indicative of a particular disorder”, eg. chronic fatigue syndrome.

Some Western scholars prefer the translation “pattern” or “manifestation” rather than “syndrome”.<sup>55</sup>

Syndromes differ from symptoms (*zhenghou* 症候), which are signs experienced by the patient or determined by the doctor’s diagnosis. The syndrome is also different from disease (*bing* 病), which comprises “a group of symptoms with a coherent and recurring etiology”.<sup>56</sup> It should be noted in passing that the term “disease” has strong Western medical nosological connotations. In my view, it is preferable to use the more neutral term “illnesses” for *bing* in TCM.<sup>57</sup>

Scheid notes that while the differentiation of syndromes was discussed in various parts of *Neijing* and *Shanghan*, and were used at various times in the history of Chinese medicine, there was also emphasis on diseases and symptoms rather than syndromes. It was only in the Republican era that, under the influence of classifications seen in biomedicine, TCM underwent the wide-scale “systematization of the presentation of diseases, patterns and symptoms and signs” that was needed to make *bianzheng lunzhi* the defining feature of contemporary Chinese medicine.<sup>58</sup> The syndrome characterizes a pathological process; it may be associated with more than one disease. As an example, tuberculosis is a disease, with symptoms of blood in the cough, daily fevers, lassitude, and loss of weight. A person with the disease would exhibit different (TCM) syndromes (for example, *yang* deficiency, *qi* blockage) at different stages of the progression of the disease that may require different treatment regimens.

The syndrome concept can be meaningfully described only in relation to the Chinese framework of *ba gang* 八纲 (“The Eight Rubrics”), the *locus* of the illness, and the *flow* of *qi* and blood in the body.<sup>59</sup> Four pairs of opposing characteristics make up the “eight rubrics”: *yin-yang*, depletion-repletion (*xu-shi* 虚实), cold-hot (*han-re* 寒热), and surface-internal (*biao-li* 表里). The notions of depletion and repletion are similar to those used in Greek medicine, with depletion being associated with deficiency, and repletion with excess, or with *qi* blockage. Hot and cold are *not* temperature states: a body is hot if the face is flushed, the tongue red, the patient feels dry in the throat and prefers cold drinks; it may or may not be accompanied by an elevated temperature (hence it is not a Western-defined fever). The body is in cold state if the patient is afraid of wind and chills, is not thirsty, and his tongue is pale and may have a white fur over it. The illness can be at the *surface* level near the skin, or it could be *internal*, deeper down in the muscles and blood. Illnesses caused by external pathogens start at the surface level and progress deeper if left unchecked. Its locus could also be at one or more of the organs.

Pathological conditions are defined through the eight rubrics, the locus of the illness and impediments to the free flow of *qi* and blood, though not all need to be specified in any

<sup>54</sup> Wu (2002), 218.

<sup>55</sup> See Farquhar (1994), Scheid (2002), 201 and Sivin (1987), 109.

<sup>56</sup> Sivin (1987), 106.

<sup>57</sup> Lloyd (2003:1) prefers to use “disease” for what the doctor finds, and illness for what the patient feels.

<sup>58</sup> Scheid (2002), 207, 228.

<sup>59</sup> Sivin (1987), 330-31.

syndrome. For example, if the *yang* of the kidney system has been damaged by excessive sexual indulgence, the patient suffers from the syndrome of “depletion of the kidney yang” or *shen yang xu* 肾阳虚. It is an *internal* syndrome, since it occurs deep down at the organ level; the patient typically suffers from dull chronic backache, his tongue is pale, his pulse weak, his face gaunt, and he suffers from lassitude and loathes wind and cold.

A person’s body that succumbs to an external chill might react with symptoms of heat at the “surface” level. His pulse is quick and “floating”, his tongue red and it may have a light yellowish fur on it, his face is flushed, and he feels warm (even though by Western clinical signs he may not have an elevated temperature), and he prefers cool drinks to warm ones. His syndrome is that of heat at the surface level or *biaore zheng* 表热证.

The principle of therapy is to move the body back into a state of balance. In our two examples, body heat is treated with cooling drugs, and *yang* depletion with *yang* tonics for the kidney:

<b>Syndrome</b>	<b>Treatment</b>
1. Depletion of kidney <i>yang</i>	<i>Yang</i> tonic for the kidney
2. Heat at the surface level	Resolving surface heat with drugs that induce sweating

The syndrome is differentiated by examination (*bianzheng*) and the appropriate therapy can then be determined (*lunzhi*).

In practice a patient often suffers from a number of syndromes at the same time, hence the physician needs to continually make judgmental decisions on which syndrome receives priority in the treatment process. For example, a person with weakness in the *qi* of the spleen would sometimes have weakness in the *yang* of the kidney. Depending on the condition of the patient seen from other symptoms exhibited, the physician may decide to treat the spleen first and tackle both spleen and kidney after improvement has been achieved with the spleen weakness. Syndromes are in a dynamic state. Each time the physician sees the patient, the syndromes would have evolved further, partly as a result of treatment received, and the next treatment has to be adjusted accordingly. The treatment process is thus *customized* and *iterative*, with adjustments made as the condition responds to treatment. If this sounds somewhat like trial and error, it indeed is, not in an unguided haphazard way, but with medical judgment exercised at each stage based on accepted principles within TCM.

This is not unlike the management of national economies, when a set of stimulatory measures for an economy in morbid recession may have be adjusted periodically as the economy responds to the stimulus; other problems of the economy like a weakening currency or labour union action will also have to be dealt with as one goes along, and sometimes dampening anti-inflationary measures may have to be introduced if the stimulus is overdone. The manger of the economy has to be flexible and continuously exercise judgment as he nurses the economy back to health.

In Western medical practice, the patient is more likely to be put on one set of drugs over an extended period, based on the notion that he suffers from a certain disease for which drugs have

been specifically developed. Of course, it is also possible for the patient to be treated by several Western specialists at the same time, in which case there would be a need to coordinate and manage their treatments, something not easily achieved in practice.

## Science and Culture in Medicine: Comparing Chinese and Western Paradigms

The paradigms of Chinese medicine developed from ancient cosmological models like *yin-yang* and *wuxing*; such models permeate many aspects of Chinese ethical and political culture as well. At the same time, the Chinese empirical tradition embodied in the *Neijing*, which attributed illness to natural and emotional causes, required these models to be consonant with empirical observations of effective therapies based on them. The wellspring of the Western medical tradition was the analytical and logical cultural tradition of ancient Greece and Roman, brought to their full bloom following the Scientific Revolution in 16-17<sup>th</sup> century Europe. While the paradigms of these systems of medicine occasionally show superficial similarities, they are largely incommensurable paradigms in the sense of Kuhn and attempts to find ways of transforming one paradigm to another are likely doomed to failure. A comparison of these paradigms as briefly outlined below is beyond of scope of this essay. I merely provide a list to interest the reader in the superficial similarities and the stark differences. However a preliminary discussion comparing *bianzhenglunzhi* with western etiology and therapeutics will be attempted here as it hints at the cultural differences that contributed to their acceptance within each system of medicine.

Table 3  
Comparing Paradigms  
TCM  
Western

### Models and Theories:

- |                           |  |
|---------------------------|--|
| 1. Yin Yang Principle     | Homeostasis: physiological process by which internal systems of the body are maintained in equilibrium |
| 2. The Five-Phase Model   | No equivalent paradigm   |
| 3. The Five Organ Systems | Organs and functions in human physiology   |
| 4. The Mind-Body Model    | Psychosomatic medicine   |

### Concepts and Entities:

- |                               |  |
|-------------------------------|--|
| 5. Channels and collaterals   | Nervous system and circulatory system      |
| 6. <i>Qi, jinye</i> and blood | Blood, cells, lymphatic fluids, secretions |

### Diagnostic and Therapeutic Principles:

- |  |   |
|--|---|
| 7. <i>Bianzheng lunzhi</i> : diagnose & treat syndromes; Holism      | Etiology; diagnosis and disease treatment<br>Cellular biology; human genome model |
| Examination by questions, visual inspection, olfaction and palpation | Examination by questions, stethoscopic visual examination, and laboratory tests   |

The seventh TCM paradigm — diagnosis of syndromes and therapy aimed at resolving these

syndromes (*bianzheng lunzhi*) — stands in marked contrast to its Western counterpart, and may contain one of the explanations for the longevity of TCM.

TCM techniques of examining patients is based on “the four examinations” or *si zhen* 四诊 (望闻问切) — visual (face, tongue) and olfactory observations, asking questions, and pulsation.<sup>60</sup> It may be viewed as a mapping process: each question on the patient’s feelings of tiredness, cold or warmth, bladder and bowel movements, appetite, dietary and sexual habits, and every detail from inspection of the face and tongue and from pulsation, is a point on the map that eventually differentiates the syndrome. Western clinical examinations involve less detailed visual and tactile inspection, and relies somewhat on laboratory diagnostic tests. At the basis of the difference is the Chinese principle of holism and Western reduction of etiology to the cellular level. TCM views illnesses as imbalances and/or *qi* blockages, discernible from how the patient’s condition presents itself externally, whereas Western medicine reduces it to the microscopic level.

The Chinese holistic approach is reflected in a dictum taught to students on the advantage of TCM: “Chinese medicine differentiates syndromes, Western medicine differentiates diseases” (*zhongyi bian zheng, xiyi bianbing* 中医辨证, 西医辨病).<sup>61</sup> Sivin and Farquhar both see this Chinese focus on patterns (syndromes) as a medical practice built around dynamic processes as illness develops in the body rather than, as in Western medicine, the manipulation of nosological “bounded structures”.<sup>62</sup>

Kuhn’s remark in *Structure* on scientific revolution may be pertinent here: “*The man who first saw the exterior of the box from above later sees its interior from below*”<sup>63</sup> Seeing from above gives the holistic view in medicine in traditional medicine, from below the microscopic view of Western medicine.

Advocates of Chinese medicine also see pattern differentiation in TCM as an advance over (Western) medicine based exclusively on treating symptoms without an underlying explanatory theory (advocated by Empiricists of the Hellenistic era) or the abstract and theoretical nosology of modern biomedicine.<sup>64</sup>

My view is that differences between the Chinese and Western paradigms are real but exaggerated. In the first place, the modernization and systematization of Chinese medicine, culminating in the grand paradigm of *bianzheng lunzhi* in the 20<sup>th</sup> century, was a response to compelling science in Western medicine. In fact, Western physicians had an input into the formulation of *bianzheng lunzhi*.<sup>65</sup> Second, Western medicine also has a holistic aspect: the practice of family medicine requires the physician to look at the patient as a whole and identify inter-linked problems, including emotional states and daily living habits that do not always catch the attention of the

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<sup>60</sup> Sivin (1987), 291-327.

<sup>61</sup> Scheid (2002), 202.

<sup>62</sup> Sivin (1987), 105-117, Farquhar (1994), Scheid (2002), 201.

<sup>63</sup> Kuhn (1970), 111.

<sup>64</sup> Farquhar (1994: 70, n11) comments that *bianzheng lunzhi* represents “a very deep epistemological divide” between Western and Chinese medicine.

<sup>65</sup> Scheid (2002), 281.

specialist. Nor is contemporary TCM invariably holistic: a Chinese physician who discovers a malignant tumour in a patient would usually refer him to an oncologist for surgery and chemotherapy or radiotherapy and think about treating the patient for new syndromes only following Western treatment.

The major difference between the two paradigms lies in how the physician organizes information available to him to fit patterns that accord with his medical models. For example, a patient with influenza is seen by the Western doctor as having a virus and might be treated with an anti-viral drug (such as Tamiflu) to shorten the life of the virus, but usually is offered only symptomatic relief: expectorants for cough, and analgesics for pain and fever. The TCM physician maps the patient's symptoms, sees heat, phlegm, and a dominant *yang* in his lungs, and classifies his as a lung *shi* (repletion) heat syndrome, to be treated with heat-reducing and dampness-resolving drugs.

A patient given either method of treatment usually recovers from the virus. He then enters a post-flu stage when he feels drained and suffers from a lingering cough, sometimes for weeks. Many TCM physicians feel that it is at this second stage that the TCM physician comes into its own. The Western physician deems the flu virus gone and the illness over, and prescribes a cough suppressant to make the patient more comfortable and advises him to get more rest. The TCM physician sees a new syndrome: the patient's *qi* level and the *yin* of his lung have been damaged, causing lassitude and a dry cough. He now exhibits the lung *qi* depletion syndrome. The treatment is *yangyin yiqi* 养阴益气: nourishing the *yin* to improve secretions in his throat and repletion with a *qi* tonic.

Another practical difference between the two paradigms is reflected in the Chinese principle, “*yibing tongzhi, tongbing yizhi*” 异病同治, 同病异治 (Same treatment for different diseases, and different treatments for the same disease). Thus a patient with a chronic cough and another with stomach dyspepsia could be treated with the same prescription like *shenlingbaizu san* 参苓白术散, a tonic for the *qi* of the spleen. This is because the patient suffers from splenic *qi* depletion. Depending on each patient's constitution, in one case it leads to dyspepsia, in the other (through the five-phase relationship) to a cough. After ruling out bacterial infections through throat swabs, Western treatment would likely offer the first a cough syrup and the second antacids and anti-spasmodic drugs. TCM physicians would view Western treatment as only suppressing the symptoms and waiting for the patient's own system to overcome it. They regard the Chinese treatment as addressing the root cause of weakened *qi* and offering a more lasting cure.

## **The Longevity of Chinese Medicine**

Holism and *bianzheng lunzhi* may be a key reason for the survival of TCM in the face of tremendous advances in biomedicine in the last century. TCM commands a significant following

in China and many countries that are no longer technologically backward.<sup>66</sup> Thriving TCM practices are also increasingly to be found in the bastions of Western medicine like Australia, the UK, Germany and the US. Why has TCM survived when Galenic medicine all but disappeared a century ago?

The legacy of Greek spirit of inquiry into the ultimate nature of things led to great scientific advances and the rise of modern Western medicine. TCM, on the other hand, stagnated at diagnosis based on external manifestations of body conditions detectable by visual and tactile observation and detailed questions. This was the main method open to the TCM physician in ancient times, given his ignorance of biomedicine, but it provided him with a holistic framework.

Ironically, it even could lend him an advantage treating many commonplace ailments for which the modern Western doctor, distracted by his formidable arsenal of high technology diagnostic equipment, may not see the whole picture presented by the patient. As the old adage intimates: 不知庐山真面目，只缘身在此山中 (I cannot know the true face of Mount Lu, but only because I am in the midst of that mountain.)<sup>67</sup>

Where Western medicine, in its preoccupation with the cellular level, sometimes misses the overall picture, TCM fills a gap by relating the whole picture to underlying syndromes. At least from the patients' perspective, TCM has been able to treat some illnesses well enough to retain a significant role not only in China but also in more economically advanced cultures like those of Japan and Korea.

Based on anecdotal evidence provided by patients who visit TCM clinics, TCM treatment has been sought after for troublesome ailments like the irritable bowel and chronic fatigue syndromes, chronic dry coughs, difficulty in achieving pregnancy owing to body imbalance, and immune systems ravaged by chemotherapy.<sup>68</sup> TCM is likely to continue to provide an alternative method of treatment for common ailments that do not require surgical intervention or the use of special drugs targeting specific germs like the tubercle bacillus. By emphasizing the importance of body balance to prevent illness, it finds followers who want simpler formulas to maintain health in the face of vast and sometimes confusing information offered by biomedicine. There may be some evidence of this in the growing practices of Chinese physicians and acupuncturists in Australia, Europe and the United States.

In the West, it is customary to place TCM in the category of "alternative medicine" together with homeopathy, naturopathy, aromatherapy, and chiropractics. But even Ernst at the University of Exeter, described as "the world's first professor of complementary medicine" and co-author of a recent book that labels most alternative medicines "bogus", hesitates tarring TCM with same

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<sup>66</sup> In 2007 there were 206,842 registered TCM physicians in China; with supporting staff, they made up 10.01% of healthcare employees (Source: China Ministry of Health).

<sup>67</sup> Sudongpo's *Ti xi lin bi*.

<sup>68</sup> Most of its claimed success is anecdotal, but in the last 25 years there have been many academic studies suggesting TCM's efficacy for various ailments, eg. Zheng (1985) and Chen, et al (2008).

brush: “TCM is difficult to evaluate. Some elements may be effective...”<sup>69</sup> He is not alone in this. The effect of Mao’s policy to preserve TCM has spawned dozens of colleges of Chinese medicine in China and other countries staffed by researchers well trained in the modern sciences. Their research programmes have not led to sweeping conclusions about TCM.

In this regard, Feyerabend’s citing of the success of acupuncture in the West and his warning 25 years ago against the arrogance of imposing the norms of Western science indiscriminately is still relevant<sup>70</sup>

Historical and sociological explanations for the longevity of TCM may well be equally important. Among these would be government policy in China to preserve Chinese medicine and integrate it with Western medicine and the state resources that TCM enjoyed as a result. In countries like Korea, Japan and Singapore, TCM is holding its own against Western medicine, albeit not as the mainstream mode of health delivery. This could be partly because the language and concepts of Chinese medicine are derived from Chinese philosophy and East Asia countries have in one way or another been influenced by Buddhist, Confucian and Daoist philosophies embedded in their languages and cultural practices. Hence their peoples are better able to relate to explanations by TCM physicians of their illnesses and treatments given. Confidence in the physician and understanding of what he does is half the battle won for the patient.

The fact that TCM continues to have a worldwide following is no protection against its being eventually supplanted. Over half a century after Mao ordered it to be preserved and modernized by combining it with Western medicine, TCM is facing what looks like Kuhnian crisis for some of its key paradigms. The debates that raged in the 1930s have been revived in China and there are renewed calls for the phasing out of TCM, preserving only those therapies like acupuncture and selected herbal remedies that appear effective, but subjecting them to the rigours of biomedicine and evidence-based medicine.<sup>71</sup> Some of these studies have begun to throw doubt on accepted wisdom in TCM, including the efficacy of acupuncture for treating pain.<sup>72</sup> One of the core paradigms of TCM, the five-phase model, has been the subject of criticism. Originally, it was attacked by Western-trained doctors who complained that it implied so many mutual interactions that “it could explain everything but really explained nothing.”<sup>73</sup> But more

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<sup>69</sup> Singh and Ernst (2008), 328. Recently the NHS in the UK has recognized the efficacy of acupuncture for treating back pain (*The Times*, 27.5.09).

<sup>70</sup> “We have become acquainted with methods of medical diagnosis and therapy which are effective (and perhaps more effective than the corresponding parts of Western medicine) and which are yet based on a ideology that it radically different form the ideology of Western science... phenomena such as ... acupuncture may eventually be absorbed into the body of science and may therefore be called ‘scientific’. But note that this happens after a long period of resistance....(When) the Chinese communists refused to be intimidated by the judgment of experts and ordered traditional medicine back into universities and hospitals there was an outcry all over the world that science would now be ruined in China. The very opposite occurred: Chinese science advanced and Western science learned from it.” Feyerabend (1974), 60.

<sup>71</sup> See, for example, Zhang Gongyao 张功耀 (2006) and Fang Zhouzi 方舟子 (2007).

<sup>72</sup> Singh and Ernst (2008), 67-88

<sup>73</sup> Qu (2005), 113

recently, even prominent TCM scholars, including Ren Yingqiu and Deng Tietao, have called for its review as some of the correspondence relationships prescribed by the model do not accord with observations of clinical practice.<sup>74</sup> Deng suggests replacing the five-phase model with a list of empirically-observed organ relationships that have been found useful in clinical practice, which would effectively exclude more than half the permutations of relationships implied by the model. The displacement of the five-phase model would strike at the heart of TCM theory, and could in turn call into question the five-organ paradigm that is an important basis for the differentiation of syndromes.

Should some of TCM's major paradigms fall and be replaced by new ones that draw on modern knowledge in the biological sciences, as they eventually must, Thomas Kuhn could be quietly pleased.

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<sup>74</sup> Deng (1988); 张军 (2005) writing on Ren Yingqiu

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