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PART VI: MEDICINE

BY

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To the memory of

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and splendid days in many parts of the world shared in a quest for understanding

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(*a*) MEDICINE IN CHINESE CULTURE

First of all it is necessary to consider the relations between the great medical systems of humanity and the cultures or civilisations in which they arose. It is surely a hopeful circumstance that Europeans are now giving up their rather self-satisfied parochialism and are eager to look at other systems of medicine, not only in the past before our modern civilisation came into being, but also in other parts of the Old World which have highly continuous and complex civilisations paralleling our own.

The attachment of Chinese medicine to its own culture is so strong that it has not yet entirely come out of it. All the sciences of ancient times and the Middle Ages had their distinct characteristics, whether European, Arabic, Indian or Chinese. Only modern science has subsumed these ethnic entities into a universal mathematised culture. But while all the physical and some of the simpler biological sciences in China and Europe have long ago fused into one, this has not yet happened with the medical systems of the two civilisations.[1] As we shall later see, much in Chinese medicine cannot yet be explained in modern terms, but that means neither that it is valueless, nor that it lacks profound interest. We hope that this volume may lead to greater mutual understanding in the intercultural and intercivilisational confrontations of our times.

We shall consider in this introductory essay a number of topics indispensable to an overview of classical medicine: its doctrines and early history, the influence of China's characteristic forms of government and religion, acupuncture as a quintessential therapy, the differences between traditional and modern medicine, and the prospects for their integration.

(1) The general position of medicine and medical doctors in traditional-Chinese society

In order to understand the position of medical men within Chinese society through the ages, it is first of all indispensable to recognise that the thinkers and the experimenters, the inventors and the physicians, age after age, came from every stratum of society.

It is appropriate to divide the sciences into the 'orthodox' and the 'unorthodox'. Chinese regarded the latter as slightly sinister, and certainly *outré*. Thus in a Confucian society there were limits beyond which a gentleman could hardly go without turning into a Taoist naturalist, not beyond the pale of course but one who had definitely turned his back upon the establishment career of worldly wealth and station.

[1] We speak of modern-Western systems of medicine and of traditional-Chinese systems. Concerning the fusion of Chinese and European science see p. 65.

Fig. 1. Consultation with a physician. A section from a copy of the handscroll painting by Chang Tsê-tuan, *Chhing-ming shang ho thu* 清明上河圖 (Going up the river on the Spring Festival, +1125). The doctor, whose shop sign dignifies him with the official title Chief Administrative Assistant Chao, is seen examining a child at the centre. To the right, people are drawing water from a well, and in front a scholar rides by with a servant behind him carrying his lute. The city depicted is Khaifêng just before its fall to the Chin Tartars. From Needham (1970), Fig. 95, facing p. 441.

Mathematics belonged to orthodoxy because the results of computations were essential for the public planning of Confucian officials, though a special skill of this kind would never take one beyond the back rooms of provincial governors. Astronomy was rather more gentlemanly because there were a limited number of jobs in the Bureau of Astronomy attached to the imperial court. Engineering activities, as in hydraulics, bridge building and poliorcetics, were also not unsuited to a magistrate, who might well be wise

enough to listen from time to time to the experienced advice of an illiterate foreman grown old in the service. But on the other hand, alchemy and proto-chemistry were distinctly unorthodox, very close to divination, genethliacal astrology, palmistry, physiognomy and various more or less black arts, such as glyphomancy and chronomancy.

Gentility extended only so far. There was nothing wrong in a learned man consulting the *I ching* 易經, and many highly regarded scholars were practical mutationists. The aura of respectability wore rather thin with the readers of geomantic compasses; the geomantic 'Masters of Ganchow' (Kan-chou hsien-shêng 贛州先生) were not often as highly regarded as their title pretended.[2]

Agriculture again was orthodox. Seeing that the main wealth of the whole empire grew up green from out of the earth, writing about farm management was perfectly in order for gentlemen, just as it had been in ancient Rome. This often included rural engineering. Botany and zoology never became distinct fields of study, but were included in the pharmaceutical natural histories and the agricultural literature. The latter comprised a great many books and monographs on horticulture, even of specific genera of flowering plants.

Medicine and the studies which supported it, such as pharmacy and the anatomy of the acupuncturists, constituted a fully borderline case. They were not situated at a particular point inside or outside the conventional social scheme. Therapists could be found at every level from the imperial court to the most isolated mountain temple, and the varieties of healing were correspondingly manifold. Our concern is learned medicine and its written traditions, but it is advisable to keep in mind that this was only the tip of the iceberg of ancient health care.

Pride of place in any sociological investigation of physicians must go to the problem of their social position. Greek appreciation of doctors is well known, as witness the quotation from the *Iliad* (XI.514) which my father was always citing to me:

> A good physician skilled our woes to heal
> Is worth an army to the public weal.

The whole history of the social position of doctors in China might be summarised as the passage from the *wu* 巫, a sort of technological servitor, to the *shih* 士, a particular kind of scholar, clad in the full dignity of the Confucian intellectual, and not readily converted into anyone's instrument. As it is said in the Confucian Analects, 'the gentleman does not act as an instrument (*chhi* 器)'.[3] During the −2nd and −1st centuries, in the Former Han period, there were many men of an intermediate sort called *fang shih* 方士; these were magicians and technologists of all kinds, some of them pharmaceutical and medical. Some Sinologists have translated this expression as 'gentlemen possessing magical recipes' and this, if somewhat stilted, is certainly not wrong.[4]

Their origin in the *wu* connects physicians (*i* 醫), despite their status as *shih*, with one of the deepest roots of Taoism. Far back at the dawn of Chinese history in the −2nd

[2] Vol. 4, pt 1, pp. 242, 282. [3] *Lun yü*, 2, 12, tr. Legge (1861), p. 14.

[4] [But it is not revealing, since *fang* implies technical methods that are in no sense necessarily magical. *Fang shih*, like *wu* (discussed in the Introduction), is an epithet, not the name of a social grouping; see Sivin (1995d), pp. 29–34. – Editor]

millennium, probably before the beginning of the Shang kingdom, Chinese society had its 'medicine-men', something like the shamans of the North Asian tribal peoples. During the course of the ages these differentiated into all kinds of specialised professions, not only physicians but also Taoist alchemists, invocators and liturgiologists for the ouranic religion of the imperial court, pharmacists, veterinary leeches, priests, religious leaders, mystics and many other sorts of people. By Confucius' time, the end of the −6th century, the differentiation of physicians had not yet occurred. He himself designated healers by a term that did not distinguish *wu* from *i* when he said that 'a man without persistence will never make a good healer (*wu i* 巫醫)'.[5]

Physicians of these ancient times are mentioned in the *Tso chuan* 左傳 (Master Tso's tradition of the spring and autumn annals, between −400 and −250), the greatest of the three commentaries on the *Chhun chhiu* 春秋 (the 'spring and autumn' annals). More than forty-five consultations or descriptions of diseases occur in these celebrated annals of the state of Lu, which cover a span from −721 to −479 and were compiled at the end of that period. Among the older ones is the incident when Huan the Physician (I Huan 醫緩) diagnosed correctly in −580 the illness of a king of Chhin. But the most important, to be discussed below, is the consultation dated −540 which another king of Chhin had with an eminent practitioner, Ho the Physician (I Ho 醫和).[6]

Before the Thang, élite writers tended to think of physicians more or less as a kind of artisan, but most doctors from the Chou to the Six Dynasties about whom we have any biographical record came from aristocratic backgrounds.[7] Still they were hardly typical. There was a general move throughout the Middle Ages to raise the intellectual standing of physicians in general. From the Thang on, as medicine entered the civil service, the literature becomes increasingly diverse. As early as +758, one can find the beginnings of an important development, the examination of medical students in general literature and the philosophical classics. We shall say more about medical qualifying examinations, but here we are concerned with their component of general education.[8] From about the time when printing began to spread in earnest, scholars distinguished for *belles lettres* or statecraft began to write most learnedly on medical matters. In Hangchow from about +1140 onwards the candidates were expected to pass tests in the literary and philosophical classics as well as in medical subjects. An imperial decree of +1188 ordered that unqualified medical practitioners must pass provincial examinations. These included the general classical writings as well as sphygmology and other medical techniques. Anyone who did really well could gain an opportunity of joining the Artisans' Institute (Han Lin Yüan 翰林院). This palace institution was divided into sections for astronomy, painting and calligraphy besides the medical one. Each member was regarded as supreme in his own specialty, but was usually a specialist rather than a regular official.

Although a medical career seldom led to great income and never to high rank in the civil service, from the +13th century scholars of high degree did not hesitate to join the

[5] *Lun yü*, 13, 22, tr. Legge (1861), p. 136. [6] See p. 43.
[7] Based on an unpublished survey by the Editor. [8] See Section (*c*).

ranks of the physicians. This shift began when Mongol rule greatly reduced the opportunity for the sons of the learned gentry to become officials. It continued as opportunities for advancement in officialdom again diminished in the Ming, and more markedly in the Chhing. Nevertheless, hereditary curers and learned scholars continued to practise side by side until modern times.[9]

These gradual changes in educational and career patterns are important, for they show that considerable numbers of physicians were well educated in general literature, and with greater culture than their predecessors had possessed. Such men called themselves *ju i* 儒醫 (literally, 'Confucian physicians') as opposed to those they belittled as *yung i* 庸醫, mediocre practitioners or quacks.[10] Prominent among those so denigrated were the wandering medical pedlars frequently seen in late imperial China, jingling their special kind of bell on a staff and handing out herbal remedies for the smallest of fees. Indeed the grandfather of the greatest pharmaceutical naturalist in all Chinese history, Li Shih-chen 李時珍 (+1518 to +1593), was a medical pedlar. We ourselves have often met with them, and recall with particular pleasure a brilliant impersonation of the type in a revolutionary opera which we had the pleasure of witnessing at Taiyüan in Shansi in 1964.

We can exclude at the outset any idea that the profession as a whole was despised in Chinese civilisation.

(2) The principal doctrines of Chinese medicine

Now we will say something about the doctrine, the fundamental philosophy of Chinese medicine. We like the saying of Keele (1963) that 'it would seem probable that the first civilised people to free themselves from the purely magico-religious concepts of disease were the ancient Chinese', but we cannot follow him in his belief that this liberation was achieved only briefly until the acceptance of Buddhist thought from India. Nor can we agree with him that the ancient Chinese substituted 'metaphysical' modes of thought for primitive magico-religious conceptions and practices. Everything depends, of course, on what one means by metaphysical, but if we use the term in its generally accepted sense in modern-Western philosophy as meaning ontology, the problem of Being, and the dispute between realists and idealists, it is surely not applicable here. We have to deal with an ancient philosophy of Nature, a set of hypotheses about the Universe and the world of man.

The natural philosophy current among the ancient Chinese was based upon the idea of two fundamental forces, the yang 陽 and the yin 陰, the former representing the bright, dry, masculine aspect of the Universe, the latter the dark, moist, feminine aspect. This conception is probably not much older than the −6th century, but it was certainly

[9] Yamamoto (*1985*), Hymes (1987). For details on Ming medical practitioners with the highest examination degree, see Chang Tzhu-kung 章次公 (*1948*).

[10] [The epithet *yung i* seems to have been used from the Sung period on, and became common in the Ming. For general discussions of terms for 'physician' see Yamamoto (*1983*) and Chang Tsung-tung 張宗棟 (*1990*). – Editor]

dominant in the minds of the early royal physicians whom we mentioned just now. In the short lecture given by Ho the Physician in −540 to his patient the king of Chhin we can see Chinese medical thought *in statu nascendi*. Especially important is his division of all disease into six classes derived from excess of one or another of six fundamental, almost meteorological, pneumata (*chhi* 氣). Excess of yin *chhi*, he says, causes *han chi* 寒疾 (cold illness), excess of yang, *jê chi* 熱疾 (hot illness), excess of wind, *mo chi* 末疾 (afflictions of the extremities), excess of rain, *fu chi* 腑疾 (afflictions of the belly), excess of twilight, *huo chi* 惑疾 (illnesses involving confusion) and excess of the brightness of day, *hsin chi* 心疾 (illnesses of the heart and mind). The first four of these are subsumed in the later classifications under *jê ping* 熱病, diseases involving fever; the fifth implies psychological disease, and the sixth cardiac disease.

This classification into six types is of extreme importance because it shows how ancient Chinese medical science grew up to some extent independently of the theories of the Naturalists, which classified all natural phenomena into five groups associated with the Five Elements or Five Phases (*wu hsing* 五行). These ideas were first systematised by Tsou Yen 鄒衍 in the −4th century. The doctrine of the Five Elements became later universally accepted in all branches of traditional science and technology.[11] As is well known, these elements differ from those of the Greeks and other peoples in that they comprised not only fire, water and earth but also wood and metal. Chinese medicine, however, never lost entirely its sixfold classification. The yin and yang viscera (*tsang-fu* 臟腑) were mustered as six of each, although physicians and laymen spoke of them collectively as *wu tsang* 五臟. In view of the duodecimally based mathematics and world outlook of the Babylonians, one cannot but suspect an influence from ancient Mesopotamia on early China in this respect.[12]

It is not the only example of such an effect. The twelve double hours of the Chinese day and night, which go back to the beginning of Chinese culture, have long been thought to be Babylonian in origin, and some evidence has been brought forward also for close parallels in State astrology.[13]

As far as medicine is concerned, we can look for connections between cultures in another direction, namely in the very prominent part played by the conception of *chhi*, closely analogous to the Stoic *pneuma* (πνεῦμα). Both words are almost untranslatable but their significations included 'life-breath', 'subtle influence', 'gaseous emanation' and the like. Somewhat later, Chinese medical theories also dealt much with another word of very similar meaning, *fêng* 風 (wind).

Now Filliozat, in a classical monograph (1949), has shown that the *pneuma* of Greek medicine can be matched word for word, and statement by statement, with the *prāṇa* of the great Indian medical writers. Thus we see, as in perhaps hardly any other science except astronomy, a widespread community in high antiquity between the peripheral

[11] Vol. 2, pp. 232–53. [On the early character of the *wu hsing* concept and its systematisation, see Sivin (1995e). – Editor]

[12] [The most common enumeration totalled eleven, not twelve, and both *tsang* and *fu* were enumerated in various sources as fivefold. See, for example, the modern Chinese source translated in Sivin (1987), p. 213, and the historical analysis in *ibid.*, pp. 124–33. – Editor]

[13] Vol. 2, pp. 351ff.

areas of the Old World. From Greece, through India, round to China, there is 'pneumatic medicine'.

We are well aware that until now, so far as studies of the cuneiform texts have unravelled it, Babylonian medicine has been largely magico-religious in character. Still one cannot help feeling that there must have been some schools of proto-scientific medicine in Mesopotamia which bequeathed their ideas about the subtle breaths, both of normal function and pathological condition, with which the physician must contend. One cannot help feeling that some civilisation older than either Greece, India or China must have originated such conceptions and sent them out in all directions. The Iranian culture area can hardly qualify on account of its relative youth, so that Mesopotamia must have been their home.

Another doctrine prominent in ancient Chinese thought was that of the macrocosm and the microcosm. It envisaged a great interdependence of the State on its people, and of the health of the people on the cosmic changes of the Four Seasons. The Five Elements were associated in 'symbolic correlations' with many other natural phenomena in groups of five. These conceptions were applied in a remarkably systematic way to the structure and function of the living body of man.[14]

As might be expected, a society which was developing the characteristic form of bureaucratic feudalism attached great importance to preventing trouble, in both the political realm and the life of the people, rather than waiting until it arose to control it. And thus in the field of medical thought, prevention was considered better than cure. In spite of all the outside influences which may have acted on Chinese medicine from the beginning onwards, it retained an extremely individual and characteristic quality, still clearly present.

We must, of course, willingly grant to Keele that the practice of using charms, incantations and invocatory prayers to deities persisted through most of Chinese history, particularly among the poorer strata of society and in the exorcistic activities of Taoist adepts and Buddhist monks. But we can find them in the palace as well. In +585, for example, under the Sui dynasty, the Directorate of Medical Administration included, besides two Erudites (or professors) for General Medicine and two Erudites for Massage, two Erudites for Exorcism; thus there was official sanction for magico-religious techniques.

But Keele (1963) is absolutely right in giving the impression that all these phenomena were 'fringe activities' of Chinese traditional medicine. They were quite peripheral to the practice of medicine as such, kept far indeed from the centre of the stage, and it can confidently be asserted that, from the beginning, Chinese medicine was rational through and through.[15] 'The transmutation from magico-religious to metaphysical pathology was an achievement', writes Keele, 'but it was not enough to provide a basis for progress in medicine, for it was not scientific, either in its method of observation or in its reasoning, in that it entirely failed to make use of the method of induction.' Re-writing this in our own language we should say that the advance from magic and

[14] On symbolic correlations see Vol. 2, pp. 273ff. Sivin (1995f) analyses the origins of macrocosm–microcosm doctrine.

[15] See especially *HTNC*/*SW*.

religion to primitive scientific theory was an immense achievement, but that for a wealth of reasons, which we cannot go into here, Europe was the only civilisation in which ancient and mediaeval science could give way to modern science. We would not say that the old Chinese scientific theories gave no basis for progress in medicine, nor that they were unscientific in observation or reasoning. Undoubtedly they did make use of the method of induction, but they remained pre-Renaissance science and never became modern science.[16]

(3) The fathers and their history

So much for social position and perennial philosophy; now a word about the fathers of medicine and their history. A comparison between the early classical periods of Chinese and Greek medicine is of much interest. In China there is a figure paralleling Hippocrates (−460 to −379), but not quite so much is known of his personality and he is not directly connected with the Chinese counterpart of the Hippocratic corpus. This was Pien Chhüeh 扁鵲, for whose life we have an authoritative source in the *Shih chi* 史記 (Memoirs of the Astronomer-Royal, *ca.* −100) of Ssu-ma Chhien 司馬遷, the first of the wonderful series of Chinese dynastic histories.

Pien must have been of the generations preceding Hippocrates, for we have a firm date for a famous colloquy of his, −501. When passing through the state of Kuo just after the heir of its ruler had died, he listened to an amateurish analysis of the mortal ailment by a palace cadet. Pien claimed that he could save the king. His interlocutor, taken aback, retorted that, unless, like the legendary physician Yü Fu 俞附, Pien could cut open the body and manipulate, repair and cleanse its components (an unthinkable idea in a society that did not resort to surgery), this was an infantile boast.

> Pien Chhüeh, looking up and sighing, replied 'your ideas of medicine are no better than viewing the sky through a narrow tube or reading a piece of writing through a narrow crack. In my practice of medicine I need not even feel the pulse, look at the complexion of the patient, listen to him, or visually examine his physical condition, in order to say where the disease is located.'

He went on to make his point by diagnosing without even seeing the patient, and restoring him to life.[17]

The passage shows that at this early time the four important diagnostic observations (*ssu chen* 四診) typical of Chinese medicine were already in use. These comprised: first, the inspection of the general physical appearance of the patient, including colour and glossoscopy (*wang* 望); secondly, primitive forms of auscultation and osphristics (*wên* 聞); thirdly, interrogation, including eliciting the patient's medical history (*wên* 問); and finally palpation and sphygmology (*chhieh* 切). Pien's biography also shows that, at the time of Confucius himself, the physicians were using acupuncture needles, cauterisation with the pulp of various leaves (moxa), counter-irritants, aqueous and alcoholic

[16] [On this issue, see the Introduction. – Editor] [17] *Shih chi*, ch. 105; see also Yamada (*1988*).

Fig. 2. A physician applying moxibustion. From a painting by Li Thang 李唐, *ca.* +1150. From Needham (1970), Fig. 82, facing p. 441.

decoctions of drugs, medicated plasters, massage and gymnastics. It is striking to find so many therapeutic methods already elaborated before the time of Hippocrates.[18]

Now what corresponded in China to the Hippocratic corpus? We know that the books in that great collection were written during a period of time covering much more than

[18] [Few scholars today consider the Pien Chhüeh anecdotes in this and other sources historically reliable or markedly pre-Han in origin. It is far from certain that they are about the same physician or the same period. See the summary in Takigawa (*1932–4*), ch. 105, p. 7, and the quite different versions of this anecdote, earlier and later than *Shih chi*, in *Han shih wai chuan* 韓詩外傳 (*ca.* –150), ch. 10, pp. 6b–7b, and *Shuo yüan* 說苑 (–17), ch. 18, pp. 13a–14a. Chang Tsung-tung (*1990*), p. 144, discusses 'Pien Chhüeh' as not the name of a person but a title of esteem for physicians.

the life of Hippocrates himself, i.e. from the beginning of the –5th century down to the end of the –2nd. Only a few of them are now considered 'genuine', in the sense of having come from the pen or the dictation of Hippocrates himself.

The Chinese counterpart is the *Huang ti nei ching* 黃帝內經 (The Yellow Emperor's manual of corporeal [medicine]), often referred to as the *Nei ching*. The extant forms appear to be large books divided into separate chapters, but like the Greek corpus each is a compilation of tractates. The Manual deals indeed, just as the Hippocratic corpus does, with all aspects of the normal and abnormal functioning of the human body, with diagnosis, prognosis, therapy and regimen. It was, we think, approximately in its present shape by the –1st century, in the Former Han dynasty. No one disputes that it systematised the clinical experience and the physiopathological theory of the physicians of the preceding five or six centuries.[19] The attribution of the work to the mythical Yellow Emperor (a favourite Taoist figure) is of little significance.[20] The book contains some practical knowledge of the ancients and elaborates the *philosophia perennis* of Chinese medicine. All later writings in this field derive and develop from the *Nei ching*. It is quite natural that such a compendious treatise should have been made in the Chhin and Han periods, for the institution of the first unified empire in the Chhin brought about not only a centralisation of government but also a standardisation of weights and measures, even down to the gauge of carriage wheels: in sum, a general systematisation of Chinese practices.

A minor difference from the Hippocratic tractates is that in the *Nei ching* a great deal of the text is cast in the form of dialogues between the legendary Yellow Emperor and his biological–medical preceptors and advisors (equally legendary) such as Chhi Po 岐伯.

The *Huang ti nei ching* studied by physicians over the past thousand years consists of two books, the *Su wên* 素問 (The plain questions [and answers]) and the *Ling shu* 靈樞 (The vital axis), both probably compiled in the –1st century. Wang Ping 王冰 edited the surviving recension in +762, considerably altering (not for the first time) the form that the corpus had in the Han period. About a hundred years earlier than Wang Ping, Yang Shang-shan 楊上善 compiled another recension of the *Huang ti nei ching*, known as *Thai su* 太素 (The great innocence), which has come to light only in recent times. Parts of it are nearer the original text of the Han. It is incomplete, but probably contained, organised in a different order, roughly the same range of material as the two later compilations.[21]

Christopher Cullen has pointed out (private communication) that the 'Inner Canon' and 'Outer Canon' of Pien Chhüeh listed in the bibliography of the Han history (but, unlike the *Huang ti nei ching*, later lost) make him an excellent candidate for comparison with Hippocrates. Both are historically shadowy figures to which large compilations of medical writing were eventually attributed. – Editor]

[19] [On this contentious question see the review in Sivin (1993), pp. 199–201. It is likely that the constituent parts of the *Nei ching* reflected developments over less than a century. Two particularly useful collections of research reports on the *Nei ching* are Maruyama (*1977*) and Jen Ying-chhiu 任應秋 & Liu Chhang-lin 劉長林 (*1982*). – Editor]

[20] It has taken on great significance in the past decade as scholarly attention has focussed on the Huang-Lao movement of the Han dynasty. See Yü Ming-kuang 余明光 (*1989*) and Csikszentmihalyi (1994).

[21] [The *Thai su* reached its final form after +656, and the *Su wên* and *Ling shu ca*. +762; see Sivin (1993). Several chapters of the *Su wên* were interpolated from late sources at that time or later. Keegan (1988) has given evidence that none of the recensions is consistently closer to the original or more reliable than another.

The *Nei ching* contains the fundamental principles of traditional Chinese medicine. The *Su wên* recognises and describes many specific disease entities, noting the regular associations of symptoms which permit their diagnosis. It traces their aetiology in terms of the classical physiological theories which it enunciates, having due regard to external influences. As for therapeutics, it concerns itself chiefly with acupuncture.

Unfortunately, although the basic principles of the *Nei ching* are not difficult, its language is archaic and hard to understand. Nor were the ancient commentaries on it easy to understand. Hence, during the centuries, only scholars of high quality could master the corpus and become truly learned physicians. The difficulty of the *Nei ching* is that the technical terms are often ordinary words that have been given special meanings. Sometimes they occur along with the same word used in its ordinary sense in the same passage. Much confusion about Chinese medicine has arisen from misunderstanding of the *Nei ching*.[22]

The *Nei ching* scheme of diagnosis (systematised *ca.* +200 in the *Shang han tsa ping lun* 傷寒雜病論) classified disease symptoms into six groups in accordance with their relation to the six circulation tracts (*ching* 經) through which the pneuma (*chhi*) coursed through and around the body. Three of these tracts were allotted to the yang (*thai-yang* 太陽, *yang-ming* 陽明, *shao-yang* 少陽) and three to the yin (*thai-yin* 太陰, *shao-yin* 少陰, *chüeh-yin* 厥陰). In feverish illness each of them was considered to preside over a 'day', one of six 'days', actually stages, following the appearance of the disease. In this way physicians established differential diagnoses and decided upon appropriate treatments. These tracts were essentially similar to the tracts of the acupuncture specialists, though the acupuncture tracts were composed of two sixfold systems, the cardinal (*ching* 經) and decumane (*lo* 絡). They crossed each other like the streets of a city laid out in rectangular grid arrangement.[23]

By the time of the *Nei ching* the physicians had fully recognised that diseases could arise from purely internal as well as from purely external causes. The ancient 'meteorological' system explained by Ho the Physician had therefore been developed into a more sophisticated sixfold series, namely *fêng* 風, *shu* 暑, *shih* 濕, *han* 寒, *tsao* 燥 and *huo* 火.[24] As external factors they could be translated as wind, humid heat, damp, cold, aridity and dry heat; but as internal causes we could name them blast (cf. Van Helmont's blas), fotive *chhi*, humid *chhi*, algid *chhi*, exsiccant *chhi* and exustive *chhi*. It is interesting to

'Great innocence' seems to extrapolate from 'pristine' as a meaning of *su* 素. This interpretation is not pertinent to the book's contents. A gloss by Chhuan Yüan-chhi 全元起, author of its first known commentary, supports a more obvious understanding: 'Grand basis'. – Editor]

[22] [For additional perspectives see the essays by Chinese and Japanese authors in Unschuld (1988). The papers by Western writers in this conference volume should be read with caution, since the authors' grasp of the classical medical literature and its language varies greatly. – Editor]

[23] [European acupuncturists in the 19th century fell into the habit of calling the *ching* 'meridians' by mistaken analogy to another sense of *ching*, namely longitude. Some occidental writers on acupuncture now call them 'conduits', unaware that *ching* was only one of a number of ways, each with distinct implications, to designate circulation pathways. Early physicians used *sui* 隧 when they wished to imply a conduit, since *ching* has no such associations. Lu and Needham appropriately call *ching* tracts or acu-tracts. See Sivin (1987), pp. 135–7. – Editor]

[24] See p. 43.

notice the partial parallelism with the Aristotelian–Galenic qualities, which were part of a quite different fourfold system.

It will have been noticed that we translate the title *Huang ti nei ching* as 'The Yellow Emperor's manual of corporeal [medicine]'. This raises an extremely interesting question. The first English version translated the title as 'The Yellow Emperor's manual of internal medicine', but this is indisputably wrong, and other scholars have not accepted it. Not only did it introduce a modern conception where it has no place to be, but it also entirely mistook the significance of the word *nei*. The two last words of the title mean literally 'inner manual'.[25] The bibliography of the Western Han history also contains a *Huang ti wai ching* 黃帝外經, literally the 'outer manual', which we prefer to entitle 'The Yellow Emperor's manual of incorporeal (or extra-corporeal) medicine', as well as other pairs of 'inner' and 'outer' medical manuals from other traditions. All disappeared during the early centuries of our era, and no explicit statement of what the titles meant survives.

Many other ancient Chinese books are grouped in 'inner' and 'outer' chapters (*phien* 篇). For example, the 'Inner chapters of the Preservation-of-Solidarity Master' (*Pao Phu Tzu nei phien* 抱樸子內篇), written by Ko Hung 葛洪 about +320 and accompanied by a separate book of 'outer chapters' (*wai phien* 外篇) on other topics, is the greatest of Chinese alchemical books.[26] One might be tempted to translate 'inner' and 'outer' by esoteric and exoteric, respectively, the former being a secret doctrine not to be revealed to people in general, the latter being the overt publicly preached system. But this would involve just as serious a mistake as that which we are trying to correct.

The key to the real meaning for which we are seeking is to be found in the classical statement of the Taoists that they 'walked *outside* society'. Again, the *Chuang tzu* 莊子 book says: '*outside* time and space (*liu ho* 六合, literally, "the six directions") is the realm of the sages, and I am not speaking of it here'. In other words, *nei* or 'inside' means everything this-worldly, rational, practical, concrete, repeatable, verifiable, in a word, scientific. Similarly, *wai* or 'outside' means everything other-worldly, everything to do with gods and spirits, sages and immortals, everything exceptional, miraculous, strange, uncanny, unearthly, extra-mundane and extra-corporeal or incorporeal. Let it be noted in passing that we are not here using the term supernatural. In classical Chinese thought nothing, however strange it may happen to be, is outside Nature. This is why we propose the translation 'The Yellow Emperor's manual of corporeal [medicine]'. The fact that the *Wai ching* was lost so early emphasises once again precisely the quite secondary character of the magico-religious aspect of medicine in China; for cures

[25] It is normal to translate *ching* in early book titles as 'canon' or 'classic'. The word implies an authoritative text, often considered to have been revealed by a sage, and transmitted by a lineage of scholars. Joseph Needham preferred 'manual' to emphasise its Thang and later derivative usage in the titles of various technical writings. It would be hard to argue that Han physicians thought of the *Nei ching* primarily as a handbook. See Henderson (1991) and Sivin (1995c).

[26] Vol. 5, pt 3, pp. 75–113. [In Ko's autobiography he lists the outer and inner chapters as separate books, and they have been so treated by bibliographers. See the 'outer chapters', ch. 50, pp. 9a–9b. Ware (1966) includes the autobiography in his translation of the 'inner chapters'; see *ibid*., p. 17. – Editor]

effected by charms, cantraps and invocations must certainly have been included in the 'outside' corpus.[27]

Before leaving this subject we should like to refer to certain other uses of the terms *nei* and *wai* which might be made to explain the title of the Chinese Hippocratic corpus but in fact cannot serve that purpose. Modern medicine in China incorporates the Western distinction between *nei kho* 內科 and *wai kho* 外科 (or *yang kho* 瘍科), the former meaning internal and general medicine, and the latter external medicine. In traditional medicine *wai kho* included such surgery as the Chinese carried out, but the term was much wider than surgery in the modern sense, for it included the treatment of fractures and dislocations, boils and eruptions, and dermatological and other conditions of the outer surface of the body. This internal–external distinction in medical practice, however, does not go much further back than the Sung period (+10th to +13th centuries), where the Imperial Academy of Medicine began with three specialties (*kho*) and added others until in the Ming a classification into thirteen became usual. But neither internal nor external medicine was restricted to one of these thirteen departments. All this can have nothing to do with the *Nei ching*, the text of which recognises no such distinctions.

Another *nei–wai* differentiation occurs in historical writing associated with the words *shih* 史 (historical account) or *chuan* 傳 (tradition, often biography). Oddly enough, 'inside history' and 'outside history' both denote unofficial versions, with somewhat different shades of meaning. This does not apply in any way to the *Huang ti nei ching*.

In alchemy there is an important distinction between *nei tan* 內丹 and *wai tan* 外丹, the 'internal' and 'external' elixirs. The former term refers to 'psychophysiological alchemy', in which the elixir used to be made from the juices and organs of the body itself. *Wai tan* on the other hand refers to the elixirs of longevity or immortality prepared from chemicals by manual operations in the laboratory. Here, as in the case of esoteric and exoteric, the meanings are almost diametrically opposite, for the 'inner' was the physiological and the 'outer' was the practical and proto-scientific.[28] Lastly, the words could be used in a perfectly straightforward and unsophisticated way, as in the title of

[27] *Chuang tzu*, ch. 2, l. 56, tr. Fêng Yu-Lan (1933); Legge (1891), p. 189. [This argument is extremely difficult to follow, since the two books of Pao Phu Tzu are counter-examples of the distinction that the authors propose. The *Pao Phu Tzu nei phien*, the 'inner chapters', is explicitly concerned with Taoist esotericism, including 'cures effected by charms, cantraps and invocations'. Ko Hung describes his own 'outer chapters' as 'concerned with success and failure in the world of men, and what is propitious and unpropitious in secular affairs; they belong to the Confucian school'; *Wai phien*, ch. 50, p. 9b.

The authors may have been tempted to take this approach by the unsatisfactory translations of the *Chuang tzu* available when they began to investigate ancient medicine. The standard-setting version of Graham (1981), p. 57, renders the cited sentence and the one that follows as 'What is outside the cosmos the sage locates as there but does not sort out. What is within the cosmos the sage sorts out but does not assess.' That does not have the connotations that the authors propose, and is irrelevant to book titles. Given the lack of evidence for exactly what the Yellow Emperor titles meant, and the inconsistency in the usage of *nei* and *wai* elsewhere, historians of medicine now translate the titles literally (as 'Inner Canon' and 'Outer Canon') rather than offer an interpretation. – Editor]

[28] [This is an evaluation from the standpoint of modern science, not a distinction meaningful at the time. Internal alchemy, as adepts thought of it, was not physiological manipulation but meditative visualisation. External alchemy was not proto-science, if this involves cognitive goals. It aimed, like internal alchemy, at spiritual perfection, personal immortality in the flesh, and appointment in the bureaucracy of the gods – not, in Chinese thought, contradictory goals. See Vol. 5, pt 4, pp. 210–98. – Editor]

a lost book of acupuncture diagrams written by Chu Kung 朱肱 in +1118 – the *Nei wai êrh ching thu* 內外二景圖. The 'Illustrations of internal and external views' included diagrams of the circulation near the surface of the body and the organs at its centre. We think that this sort of philological excursus into the proper nuances of words is abundantly worthwhile for the prevention of serious misunderstanding.

It is indeed fortunate for the historian of Chinese medicine that we have an extremely important physician's biography dating, we believe, from roughly two generations before the *Huang ti nei ching* was put together. The biography of Shun-yü I 淳于意 by Ssu-ma Chhien follows that of Pien Chhüeh in the same chapter of the *Shih chi*. The second part is by far the more important, because it contains twenty-five clinical histories related by Shun-yü I as well as his replies to eight specific questions, all on the occasion of an imperial decree of not long after −167 seeking information about the prognostic abilities of doctors.[29]

Born *ca.* −214 in the old State of Chhi (now Shantung), Shun-yü I, although he held the post of Director of Granaries, practised medicine among kings as well as officials and common people. In about −176 he was accused of an unspecified crime and imprisoned, but released after the supplication of his daughter. This was the famous occasion when mutilative punishments were revoked, alas only temporarily. Shun-yü practised until about −150.

It is possible to explain the nature of nearly all the cases attended by Shun-yü I in modern terms. Though a few of these interpretations may be subject to revision, the majority are perfectly clear. We have thus a unique record of medical practice and knowledge in the −2nd century.

On the occasion of the imperial enquiry, Shun-yü I referred to more than twenty books that had been handed down to him by his teachers or that he had taught his disciples. As Keegan among others has shown, many of these titles are mentioned, and some of the texts appear, in the present *Huang ti nei ching*. This implies, although it does not prove, that Shun-yü had at his disposal some of the materials that were later incorporated into the *Nei ching*.[30]

Bridgman in 1955 ended his medical assessment of Shun-yü's clinical histories by making a weighty comparison with Greek medicine. Far from being an assembly of magical practices and inexplicable fantasies, he says, it appears that in China the examination of the sick person, the investigation of the clinical history, the comparison of data from different examinations, and the therapeutic deductions all formed part of a discipline which constituted a valid and valuable precursor of contemporary clinical science. In this light ancient Chinese medicine can fully sustain any confrontation with Greek or Roman medicine of the same period. With this we wholeheartedly concur.

The Later Han, Three Kingdoms and Chin periods brought a number of outstanding physicians and medical writers roughly corresponding to Aretaeus, Rufus, Soranus

[29] [Bridgman (1955) has consecrated to the life and times of Shun-yü I a monograph that provides valuable medical assessments, although it frequently misunderstands the text. Keegan (1988), Sivin (1995c) and Loewe (1997) have studied aspects of Shun-yü's career. – Editor]

[30] See the translation in Sivin (1995c), pp. 179–82, and the discussion in Keegan (1988), pp. 226–31.

and Galen. The life and work of Chang Chi 張機 (Chang Chung-Ching 張仲景), who probably lived from +152 to +219, closely paralleled that of Galen (+131 to +201). One could hardly say that in China the influence of this younger contemporary of Galen over the ages was less than Galen's in the Western world. For his *Shang han tsa ping lun* (Treatise on febrile diseases), produced about +200, was one of the most important medical classics after the *Huang ti nei ching* itself, and more important from the viewpoint of drug therapy.

Next came Hua Tho 華佗 (+190 to +265), about whom many stories subsequently clustered. Little of what he wrote has come down to us, but Chinese physicians trace back to him the great developments of medical gymnastics, massage and physiotherapy.[31] The third century brought two more men of the highest importance. First, Huangfu Mi's 皇甫謐 (+215 to +282) *Huang ti chia i ching* 黃帝甲乙經 (The A–B manual [of acupuncture], named after its method of designating chapters) was a most influential work. No less important, however, was the *Mo ching* 脈經 (Pulse manual), compiled by Wang Hsi 王熙 (usually called Wang Shu-ho 王叔和) about +300 from the *Nei ching*, *Shang han tsa ping lun* and other early classics. It became the foundation of all later works on the pulse.[32] As Wang was born about +265 and died in +317, we have come down to the time of Oribasius, and the classical period of Chinese medicine draws to a close.[33] Its vast developments in later ages we cannot follow further here.

(4) Influences of bureaucratism on Chinese medicine

Let us now turn to how developing within a society based on bureaucratic feudalism affected the medical profession. Westerners seldom understand that for some 2,000 years Chinese society was constructed in an entirely different way from anything known in the West. The principles of aristocratic-military feudalism are familiar to all educated Europeans, though historians are aware that its practice was far more complex and diverse than laypeople usually imagine. Broadly speaking, traditional China (at least after the –3rd century) lacked the occidental apparatus of fiefs and feudal ranks, of primogeniture and inherited lordships. Instead of all this the culture was governed by what became in the Thang and Sung dynasties a non-hereditary bureaucracy. The members of this immensely elaborate civil service were drawn from the ranks of the educated gentry. Instead of earls and barons there were governors and magistrates. Access to this 'mandarinate' was the result of passing the official examinations, to an extent that varied greatly over history. In this sense Chinese invented the 'career open to talent' a

[31] [Equally important in the second century is the *Huang ti pa-shih-i nan ching* 黃帝八十一難經 (Manual of 81 problems [in the Inner Canon] of the Yellow Emperor, usually now referred to as the *Nan ching*). Unschuld (1986b) has emphasised the book's importance as a first attempt to construct a synthesis out of the frequently inconsistent discussions in the *Nei ching*. – Editor]

[32] [More than half of the text can be traced to extant sources. Some scholars, e.g. Kosoto *et al.* (1981), vol. 8, pp. 333–402, argue that, since diagnosis is not primarily by the pulse, the title should be translated 'Canon of the circulation vessels'. – Editor]

[33] [One might argue that the classical period ends with the *Nei ching*, and that *Nan ching*, *Mo ching* and *Chia i ching*, all of which are attempts at synthesis based on it and other early canons, represent the beginning of classicism. – Editor]

millennium before it appeared in France.[34] Knowledge of Chinese customs, we know, greatly influenced +18th-century France.

The Chinese society of the −1st millennium, the time of the Spring and Autumn and Warring States periods, is justly characterised as feudal or proto-feudal. But it is certain that with the passage of time all feudal elements persistently declined and were replaced by the non-hereditary bureaucratic society.

As might be expected, the influence of this very different form of society upon medicine was profound. Instruction began early in those sciences important to the State, for example, medicine, astronomy and hydraulic engineering. So we find that the government established medical professorships, colleges and examination ranks between the end of the +5th and the middle of the +8th century. These activities aimed primarily at meeting the need of the palace for medical care, but government sponsorship extended gradually to military and provincial medical administration. We tell this story in Section (*c*), with special attention to qualifying examinations.

At first the dates may seem remarkably precocious. They are less so once the distinctively bureaucratic-feudal character of Chinese society is understood, together with the age-old respect of the Chinese for learning and for a learned, non-hereditary civil service. It would hardly be possible to imagine a deeper effect of the environing culture on medicine than this 'bureaucratisation' of medical knowledge, which had the extremely happy effect of protecting people at large from the activities of ignorant physicians.[35]

In a bureaucratic society it was quite natural that, as the conception of hospitals formed, religious and governmental initiatives should, from time to time, contend together. The idea of the hospital in China first arose in the Han before the introduction of Buddhism. During the Six Dynasties period, religious motives led to the foundation of many institutions, always by Buddhists. Then, when Confucianism regained strength towards the end of the Thang and especially during the Sung dynasty, the national medical service more and more took over the hospitals. Under the Yüan dynasty, at the time of the Mongol conquest of Persia and Iraq, medical organisations of Arabic type and tradition were added, just as a Muslim Bureau of Astronomy was set up as an auxiliary to the age-old department of the Astronomer-Royal. Finally, however, under the Ming and Chhing dynasties social organisms of many kinds, hospitals among them, decayed. When Westerners first began to visit China in considerable numbers early in the 19th century they gained an altogether wrong idea of the history of medical administration in China. Nevertheless, many interesting hospitals and public charities did continue in these late times.[36]

[34] See Sections 48 and 49 in Vol. 7. [The examinations were a remarkable vehicle for recruiting widely, but their role in social mobility was limited. A large proportion of initial civil service positions, varying through history, were filled by directly appointing the sons or other close relations of high officials. As for the rest, Hartwell's demographic studies (1982, pp. 419–20) indicate that much of the winnowing took place before the candidates entered the examination rooms. A system of recommendations and control of examination quotas made it possible for a small number of local gentry families of the Yangtze region in the Sung to 'perpetuate their political position', largely interdicting even the initial examinations to any but members of their own lineages. This made birth or marriage into such lineages an indispensable step toward a great career. – Editor]

[35] [See the Introduction. – Editor]

[36] Leung (1987) argues that, as government medical charities decreased in this period, private support grew.

As in so many other fields, the beginnings of the hospice go back to the troublous but venturesome times of Wang Mang 王莽 (r. +9 to +23). On the occasion of a severe drought and locust plague in +2 'commoners stricken by epidemics were accommodated in empty guest-houses and mansions, and medicines were provided for them'.[37] But this, it seems, was only a provisional measure, not the foundation of an institution.

The first permanent hospice with a dispensary is that founded by Hsiao Tzu-liang 蕭子良, a Buddhist king of the Southern Chhi dynasty, in +491. Characteristically, the first government hospital followed very soon afterwards when in +510 Tho-pa Yü 拓跋余, a king of the Northern Wei dynasty, ordered the Court of Imperial Sacrifices (*Thai chhang ssu* 太常寺) to select suitable buildings and attach a staff of physicians for all kinds of sick people who might be brought there. This hospital, called merely *pieh fang* 別坊 or 'separate buildings', had a distinctly charitable purpose, being intended primarily for poor or destitute people suffering from disabling diseases. Severe epidemics were again the background of the initiative. Later in the same century we have a good example of the pattern of semi-private benefactions by officials which afterwards became widespread. Hsin Kung-i 辛公義, one of the generals who had conquered the house of Chhen and helped to unite the empire under that of Sui, encountered a violent epidemic in the province where he had retired to be governor. He turned his own residence and offices into a hospital and provided drugs and medical attendants to thousands of people (*ca.* +591). The classical example of such a benefaction no doubt was the action of the great poet Su Shih 蘇軾 (or Su Tung-pho 蘇東坡). When Prefect of Hangchow in +1089, he founded and richly endowed a government hospital that formed a model for other provincial cities.

It is in the Thang that we can best study the conflict between religious and governmental control of hospitals. In +653 Buddhist and Taoist monks and nuns were forbidden to practise medicine. In +717 the minister Sung Ching 宋璟 memorialised the throne saying that ever since Chhang-an had been the capital (i.e. since the beginning of the Western Wei in +534), hospitals there had been supposedly controlled by government officials, but because of neglect the Buddhist religious leaders had taken over these functions more and more. By +734 action was taken, at least in the capital, to establish government-supported orphanages and infirmaries for the destitute. By +845, as part of the great dissolution of the monasteries under Wu Tsung 武宗, the hospices long called Compassion Pastures 悲田 (*Pei thien*) were transferred to lay control under the name of Patients' Buildings 病坊 (*Ping fang*). At the same time, much temple property in land and buildings was expropriated by the emperor and allocated to these hospitals. Meanwhile, since the beginning of the dynasty in +620, there had been a special hospital and clinic, the Affliction Buildings or *Huan fang* 患坊, within the imperial palace, with its own medical stores, under the control of a special superintendent. The Medical Supervisors, Principal Practitioners and Master Physicians of the Imperial Medical Office served in turn at this institution.

The regularisation of hospital services carried out in the Thang bore great fruit in the Sung, when we find (*ca.* +1050 to +1250) a wide variety of State institutions at

[37] *Chhien Han shu* 前漢書, ch. 12, p. 353.

work both in the capital and the provinces. There were infirmaries for the care of the aged and the sick poor (*Chü yang yüan* 居養院 and *An chi fang* 安濟坊, from +1102, and the *Fu thien yüan* 福田院), as well as a hospital mainly for foreigners (*Yang chi yüan* 養濟院, from +1132), another for sick officials (*Pao shou tshui ho kuan* 保壽粹和館, from +1114), and even one for Chin Tartar prisoners of war (also called *An chi fang*, about +1165). Besides all these there were orphanages (*Tzhu yu yüan* 慈幼院, from +1247, and *Yü ying thang* 育嬰堂) and subsidised government apothecaries (*Mai yao so* 賣藥所, *Hui min yao chü* 惠民藥局, and other titles, from +1076).

Comparative data suggest that in hospital organisation Chinese practice was not so far ahead of the rest of the world as it was in the matter of qualifying examinations and government medical services. Hospitals of some kind are attested by the +1st century both for India (as in the *Carakasamhita*, or at Mihintale in Ceylon) and for the Roman Empire (the *valetudinaria* of legionaries, gladiators, etc.). More exact studies are needed to elucidate their nature. The Chinese Buddhist pilgrim Fa-hsien 法顯 described the Indian facilities in the +5th century. At this period too there arose the great hospital of Jundi Shahpur in Persia, heir of the former University of Edessa and precursor of the splendid foundations of Iraq, especially Baghdad, from the +8th to the +12th centuries, which correspond to the institutions we have mentioned in Thang and Sung China.

For a bureaucratic society there is also interest in examining the beginnings of quarantine regulations. As early as +356, the Chin Emperor, on the occasion of a disastrous epidemic, applied what were called the 'old rules', which prohibited officials whose families had three or more cases from attending court for a hundred days.

Another question arising is the isolation of lepers. Though we are as yet uncertain when this started, it is sure that the Indian monk Narendrayasas, who died in China in +589, established leprosaria for men and women at the Sui capital. During the Thang these institutions continued. A Chinese monk, Chih-yen 智嚴, acquired much fame by his preaching and nursing in a leper colony, where eventually he died (+654).

Whatever may be said against bureaucratic systems of society, they do at least go in for rational systematisation. This is certainly relevant to that wonderful series of pharmacopoeias, or rather pandects of natural history, which followed each other throughout the centuries between the Later Han dynasty and the Chhing. The first of these, the *Shên Nung pên tshao ching* 神農本草經 (Pharmacopoeia of the Divine Husbandman), was not produced under imperial auspices, but a number of later ones were.[38]

Such treatises, some of them vast in size, go under the generic name of *pên tshao* 本草, and most have these characters in their titles. Perhaps the best translation of the phrase would be 'the fundamental simples'. The term first appears in the History of the Former Han (*Chhien Han shu* 前漢書) for +5, when Wang Mang, shortly to become emperor

[38] We have described the *pên tshao* literature in detail in Vol. 6, pt 1, pp. 220–328. [See also Ma Chi-hsing 馬繼興 (*1990*), a survey of the full range of medical sources, Chang Ju-chhing 張如青 *et al.* (*1996*), Okanishi (*1958*), the excellent overview in Okanishi (*1974*), and Unschuld (1986a), largely summarising Japanese reference works.

Because, among other reasons, the Shên Nung compilation used early Eastern Han place names, was not included in the bibliography of the Western Han history (completed after +50), and was not quoted until the mid +3rd century, it is now generally dated to the late +1st or +2nd century. On its contents and history see the massive scholarly analysis in Ma Chi-hsing (*1995*). – Editor]

of the short-lived Hsin dynasty, called what might be described as the first national scientific and medical congress. They also appear in the biography of Wang's friend Lou Hu 樓護, an eminent physician. In later centuries the *Hsin hsiu pên tshao* 新修本草 (Newly revised pharmacopoeia, +659) was a striking example of an imperially commissioned pharmaceutical natural history.[39] In the Sung there followed Su Sung's 蘇頌 *Pên tshao thu ching* 本草圖經 (Illustrated pharmaceutical natural history) of +1062, and the many successive recensions of the great *Ching shih chêng lei pei chi pên tshao* 經史證類備急本草 (Pharmaceutical natural history for emergency use, classified and verified from the classics and histories) from +1097 on.

Books of standard drug formulae, like those of materia medica, were frequently motivated by official connections. For example, in +723 the Emperor Hsüan Tsung 宣宗 and his assistants composed the *Kuang chi fang* 廣濟方 (Formulae for widespread benefaction) for what the title announces were charitable ends. The emperor then published it and sent it out to each of the provincial medical schools. Officials actually wrote up some of its prescriptions on notice-boards at cross-roads so that the ordinary people could take advantage of them. The Arabic traveller Sulaimān al-Tājir, who was in China in +851, observed and described this practice. In +796 the Emperor Tê Tsung 德宗 disseminated throughout the country his *Chen-yüan kuang li fang* 貞元廣利方 (Medical formulae for widespread benefit from the Chen-yüan emperor). These compilations set a precedent for massive official compilations in later centuries.[40]

The systematisation of drugs and prescriptions was extended to diseases at the beginning of the +7th century. About +610 Chhao Yüan-fang 巢元方 produced, under government sponsorship, the *Chu ping yüan hou lun* 諸病源候論 (Aetiology and symptoms of medical disorders). The great interest of this large work is that it systematically classified medical disorders according to the ideas of the time, only occasionally mentioning therapeutic methods. It was thus essentially a natural history of disease, a thousand years earlier than the time of Felix Platter (+1536 to +1614), Sydenham (+1624 to +1689) and Morgagni (+1682 to +1771).

One cannot but feel that the bureaucratic mentality of 'pigeon-holing', and routing things 'through the right channels', had something to do with this early appearance of systematisation in medical science. Indeed, the classificatory sciences as a whole were strong in traditional China. The very word for science itself in modern Chinese, *kho-hsüeh* 科學, adopted (probably from Japan) at the end of the 19th century to translate the foreign word, means literally 'classification knowledge'. Of course the bureaucratic world outlook affected many other things besides medicine. As we have shown elsewhere, it is in China that one must look for the filling up of prearranged forms, the

[39] On the tangled history of this reconstituted work, see Ma Chi-hsing (*1990*), pp. 269–75, and Shang Chih-chün 尚志鈞 (*1981*). The first 'officinal' pharmacopoeia in the Western world, the *Pharmacopoeia Londiniensis* of +1659, was produced just 1,000 years later. There has been some dispute about what constitutes an officinal pharmacopoeia, commissioning by an emperor or king or enforceability at law. We prefer the former criterion, applicable to the Chinese case; Unschuld (1986a), p. 47, admits only the latter, no matter how great the extra-legal authority of a given book.

[40] On the formulary literature see Yen Shih-yün 嚴世芸 (*1990–4*) and, for works before the Yüan, Okanishi (*1958*).

beginnings of filing and card-indexing systems, and the differentiation of texts by different coloured inks.[41]

(5) Influences of the Chinese religious systems on medicine

As is generally known, the three great religious systems or doctrines, the *san chiao* 三教, were Confucianism, Taoism and Buddhism. Only the first two were autochthonous, for the latter came in from India beginning in the Later Han. The thought of these religious philosophies affected all aspects of medicine, and they must have influenced entry into the profession.

A great many medical men throughout the Middle Ages in China were trained at the government's expense, and often became civil servants, even Imperial Physicians. In addition, there must always have been a host of auxiliary practitioners who learned medicine as apprentices and treated the poor. Physicians tended to come from the families that had produced medical men for several generations. Indeed, the Record of rites (*Li chi* 禮記), contemporary with Confucius himself (early in the −5th century), has been interpreted to say that one should not take the medicine of a physician whose family had not been physicians for three generations.[42]

From what we have already said it is clear that the class structure in mediaeval China was quite different from that of Europe, because of the non-hereditary bureaucracy of the scholar-gentry. Social mobility was great. Families rose into office-holding, and sank out of it, within a few generations. The medical profession, as we have emphasised, was not wholly looked down upon after its early beginnings, for as the centuries went by more and more Confucian scholars tended to enter it.

One interesting reason why men of scholarly families took up medicine was because Confucian filial piety enjoined them to attend upon their parents. This made the great Thang medical writer Wang Thao 王燾, among many others, embark upon the studies that issued in the *Wai thai pi yao* 外臺秘要 (Arcane essentials from the imperial library, +752). Cases are also known of men who became physicians on account of the challenge of an illness from which they themselves suffered.

We must not forget here the role played by Buddhist compassion. The forbidding aspect of Buddhism which may be epitomised in the word *Śūnya* or emptiness, i.e. utter disillusionment with this world and the need to escape from the wheel of rebirths, was modified in all varieties of Buddhism by a limitless compassion for all created beings, which may be epitomised in the word *karuṇā*. Thus it came about that no Buddhist abbey was likely to be without its medical specialists. For many centuries, as we have seen, the Buddhists were active in the foundation and maintenance of hospitals, orphanages, etc.[43] The Taoists also participated in this movement, because as an organised religion Taoism tended more and more to imitate Buddhist practices. But they were not so important in the field of medical organisation.

[41] Needham (1964), p. 13.

[42] Ch. 2, p. 18. [Jeffrey Riegel, in Loewe (1993), pp. 293–5, argues that this chapter originated early in the −1st century. – Editor]

[43] On the influence of Buddhism see Ma Po-ying *et al.* (*1993*), pp. 350–89.

The profound influence of Taoism on Chinese medicine was exerted in quite a different direction. At an earlier stage (p. 41) we had occasion to speak about the primitive shamans of Chinese society, the *wu* 巫. There can be no doubt that Taoist philosophy and religion took its origin from a kind of alliance between these ancient magicians and those Chinese philosophers who, in ancient times, believed that the study of Nature was more important for man than the administration of human society, upon which the Confucians so much prided themselves.[44] At the heart of ancient Taoism there was an artisanal element, for both the wizards and the philosophers were convinced that important and useful things could be achieved by using one's hands. They did not participate in the mentality of the Confucian scholar-administrator, who sat on high in his tribunal issuing orders and never employing his hands except in reading and writing.

This is why it came about that wherever in ancient China one finds the sprouts of any of the natural sciences the Taoists are sure to be involved. The *fang shih* 方士 or 'gentlemen possessing magical recipes' were certainly Taoist, and they worked in all kinds of directions as star-clerks and weather-forecasters, men of farm-lore and wort-cunning, irrigators and bridge-builders, architects and decorators, but above all alchemists. Indeed the beginning of all alchemy rests with them if we define it, as surely we should, as the combination of macrobiotics and aurifaction.[45]

These words are a little unusual but they are carefully chosen. The ancient Alexandrian proto-chemists in the West were aurifictors, i.e. they believed that they could imitate gold, not that they could make it from other substances. Though they had a spiritual side to their endeavours, it was not a predominating one.[46] Macrobiotics, on the other hand, is a convenient word for the belief that, with the aid of botany, zoology, mineralogy and alchemy, it is possible to prepare drugs or elixirs which will prolong life, giving longevity (*shou* 壽) or immortality (*pu ssu* 不死). Similarly, aurifaction is the belief that it is possible to make gold from other quite different substances, notably the ignoble metals.

These two ideas came together first in the minds of the Chinese alchemists from the time of Tsou Yen in the −4th century onwards.[47] Europe had no alchemy in the strict sense until this combination had made its way from China through the Arab culture-area to the West. The macrobiotic preoccupation made Chinese alchemy, as it were, iatrochemistry, almost from the first, and many of the most important physicians and medical writers in Chinese history were wholly or partly Taoist. One need only mention Ko Hung about +300 and the great physician Sun Ssu-mo 孫思邈 (fl. +673). There was never any prejudice against the use of mineral drugs in China such as existed long in Europe. Indeed the Chinese went to the other extreme. They prepared elixirs containing metallic ingredients which must have caused a great deal of harm.[48]

[44] Vol. 2, pp. 3ff. [45] See Vol. 5, pt 2, pp. 8–126, on which the following paragraphs are largely based.

[46] [Although the positivist view of alchemy as primarily proto-chemistry was widespread when the original version of this chapter was written, few historians of early Western alchemy adopt it today. On the gnostic roots of the Alexandrian art see the writings of Sheppard, esp. (1962) and (1981), and on the context of alchemical operations in mystery cults, Wilson (1984). Sivin (1990) reviews recent research on Chinese alchemy. – Editor]

[47] On the association with Tsou see Vol. 5, pt 3, pp. 7, 13. [Sivin (1995e) offers a different view of the role of Tsou Yen; on Taoists as physicians see the Introduction. – Editor]

[48] On elixir poisoning, see Vol. 5, pt 2, pp. 282–94.

The object of the devout Taoist was to transform himself by all kinds of techniques, not only alchemical and pharmaceutical but also dietetic, respiratory, meditational and sexual, into a *hsien* 仙, in other words an immortal, purified, ethereal and free, who could spend the rest of eternity wandering as a wraith through the mountains and forests to enjoy the beauty of Nature without end. These are the beings that one can discern, tiny against the immensity of the landscape, flitting across remote ravines in many beautiful Chinese paintings.

The elixir concept was characteristic of China, and only of China. In the West, the alchemists were more interested in metallurgical exercises, in imitating gold, not so much in actually believing that they had made real gold from other substances, but in China there was a close connection between alchemy and medicine from the very beginning. Whether it was *wai tan*, elixirs produced from external sources, chemical substances such as minerals and metals; or whether it was *nei tan*, elixirs produced within the body for the advancement of longevity and perhaps material immortality; whichever it was, the idea that knowledge of chemistry would increase man's life by many decades was undoubtedly a Chinese conception.

That conception reached the Arabs by about +700; it got through to the Byzantines by about +1000. Then about +1250, Roger Bacon, the English Franciscan, was the first European to talk like a Taoist. In his book *De retardatione accidentium senectutis*, he said that if only we knew more about chemistry we could lengthen life enormously. Later came Paracelsus, at the end of the +15th century, with his statement that 'the business of alchemy is not to make gold but to make medicines'. With that the beginnings of all modern medical chemistry were achieved.

As time went by, the hope of developing into an immortal receded somewhat, and from the Sung onwards external alchemy shaded imperceptibly into iatro-chemistry. What Chinese iatro-chemistry was capable of can be seen by the extraordinary fact that the mediaeval Chinese chemists succeeded in preparing mixtures of androgens and oestrogens in a relatively purified crystalline form and employing them in therapy for many hypo-gonadic conditions.[49]

In connection with the possible influence of religious systems upon medical science we ought perhaps to take up a very different matter, namely the question of the mental health of the mass of the people in the culture. This opens many wide perspectives. In the absence of adequate statistical analyses we can only give our impression that in traditional and indeed in contemporary Chinese society, while the incidence of psychoses is about the same as in the West, that of the neurotic conditions is considerably less.[50] The incidence of suicide may have been about the same in the past, but for different reasons. There is much here that needs further thought and investigation, but it is generally agreed that neither of the three Chinese religions gave rise to a sense of sin

[49] See Vol. 5, pt 5, pp. 301–37. [No attempt to duplicate any of the ancient procedures has provided a substantial yield of purified hormones. See, for instance, Chang Ping-lun 張秉倫 & Sun I-lin 孫毅霖 (*1988*) and Huang *et al*. (1988). During the discussion of the latter at the Fifth International Conference on the History of Science in China, San Diego, California, 5–10 August 1988, the authors reported a lower concentration of active hormones in the product than in the urine used as raw material. – Editor]

[50] [This is not a widely shared impression. – Editor]

and guilt as Christianity did in the West. Perhaps China was a 'shame society' rather than a 'sin society'. Other facts are interesting in connection with the low incidence of neurosis, e.g. the general acceptance of Nature and natural phenomena inculcated by Taoism, and the extreme permissiveness of Chinese parents in the house-training and home life of young children.

If Chinese mentality was on the whole better balanced than that of the West, this was in spite of great uncertainty of life. Since capitalism did not spontaneously develop in China, and there was no bourgeois revolution, policed bourgeois society did not develop either. Even as late as the end of the 19th century public life could be quite dangerously at the mercy of bandits, bullies, loafers, corrupt magistrates and family tyrants. We dare not follow any further the sociological avenues opened up here except to say that the universal squeeze, graft and corruption, of which the 'Old China Hands' complained in the last century, was simply the way in which the bureaucratic mediaeval society had always worked. It seems strange only because Western society, having passed through the stage of 'serving God in the counting-house', had left that level some time before.

Of course in making sociological comparisons between Chinese and Western society one must take all periods as well as all aspects into account. To the credit of the Chinese side must be placed an almost total absence of persecution for the sake of religious opinion. No such phenomenon as the Holy Inquisition can be found in all Chinese history, nor was there anything corresponding to the witchcraft mania which makes so great a blot on European history between the +15th and +17th centuries.[51] Chinese psychology and psychotherapy remain as yet a closed book to the Western world, but there are many texts available which could be drawn upon to outline it, not least some extremely interesting books of the Middle Ages and later on the interpretation of dreams. A great work remains to be done in this direction.

(6) Acupuncture

The armamentarium of the Chinese physician by the Middle Ages was on the whole similar to that of his Western counterpart. It is possible to show that all the active principles known and used by Western physicians in the mediaeval centuries were also known in China. In some cases the Chinese had a clear advantage; for example ephedrine, which was described in the oldest of the pharmaceutical natural histories. In others, the Chinese introduced drugs later than elsewhere. In some instances the active principle was the same in China and the West, though it came from different sources. In still other cases the active principle produced a similar effect though it was chemically different.

What sets Chinese therapy most fundamentally apart from that of Europe is of course acupuncture.[52] It has been in constant use throughout the Chinese culture-area for some

[51] [In China it was secular authorities who persecuted religious institutions and fomented witchcraft scares. On the former see, for example, Weinstein (1987), pt 2; on the latter, Kuhn (1990). – Editor]

[52] For details see Lu & Needham (1980), which this Subsection largely summarises.

2,500 years. The labours of thousands of learned and devoted men through the centuries have turned it into a highly systematised department of medical doctrine and practice. Briefly, this system, as is well known, consists of a large number of *hsüeh* 穴 on the surface of the body. Europeans frequently refer to them as 'points', but since they are not at all miniscule points, we call them 'loci'. The physician, in order to affect the branches of the circulation system, penetrates the loci in different specified manners with needles of varying lengths and thicknesses.

The oldest catalogue of these loci occurs in the part of the *Huang ti nei ching* corpus called the Divine Pivot, or *Ling shu*. When the precursor of this Thang book was written, probably in the –1st century, these loci were 360 in number, possibly because of equivalence with the fancied number of bones in the body, in turn connected with the round number of days in the year. Each locus has a distinctive technical name which has developed through the ages, but there is a good deal of synonymy. The total number of loci which have been identified by distinct names is about 650. In the late 20th century, about 450 are recognised, but those most commonly employed are much fewer in number, not exceeding perhaps about 100. Before the Sung period (+11th century) we know the titles of some eighty books on the system of acupuncture loci, but the majority of these were lost. We have already taken note (p. 52) of one of the earliest systematic treatises on this art, the extant *Huang ti chia i ching*, about +280.

If this were the whole story, the system would be indeed purely empirical, but it is far from that. Practitioners connected the loci to form a complicated reticulate system quite resembling a map of the London underground railways, the *ching-lo* 經絡 (cardinal and decumane tracts). The analogy can be carried somewhat further because the tracts are indeed invisible, like modern anatomy's principal blood vessels and nerves, running along as though under the surface of the city. It is as if one had in *ching* and *lo* two transport companies with exchange points for the public, well defined at their junctions. We call these junctions anastomotic loci (*hui hsüeh* 會穴).

The classic names of the loci did not long antedate the system of tracts. We find loci designated only by location in the Ma Wang Tui documents buried in –186 and probably written a little before –200.[53] Only a few loci are named in the case histories of Shun-yü I (*ca*. +150), perhaps two generations or so earlier than the *Ling shu*. The tractates in this book outline, far from consistently, the system of tracts connecting the loci, and add correlations with the yin–yang forces and the six *chhi*. All of this was systematised in the *Chia i ching*.

There is no doubt that in the *ching-lo* system we have to deal with a very ancient conception of a traffic nexus with a network of trunk and secondary channels and their smaller branches. It seems as if from the beginning these were thought of in terms of not only civil but hydraulic engineering, for there are greater and lesser reservoirs of *chhi*. We

[53] [The picture has been additionally complicated by the excavation in Szechwan in 1993 of a lacquered wooden figure probably made between –179 and –141, painted with what appear to be circulation tracts, but no loci. Whether this reflects an early stage in the history of medicine or a distinct local tradition is not yet clear. See Ma Chi-hsing (*1996*) and He & Lo (1996). – Editor]

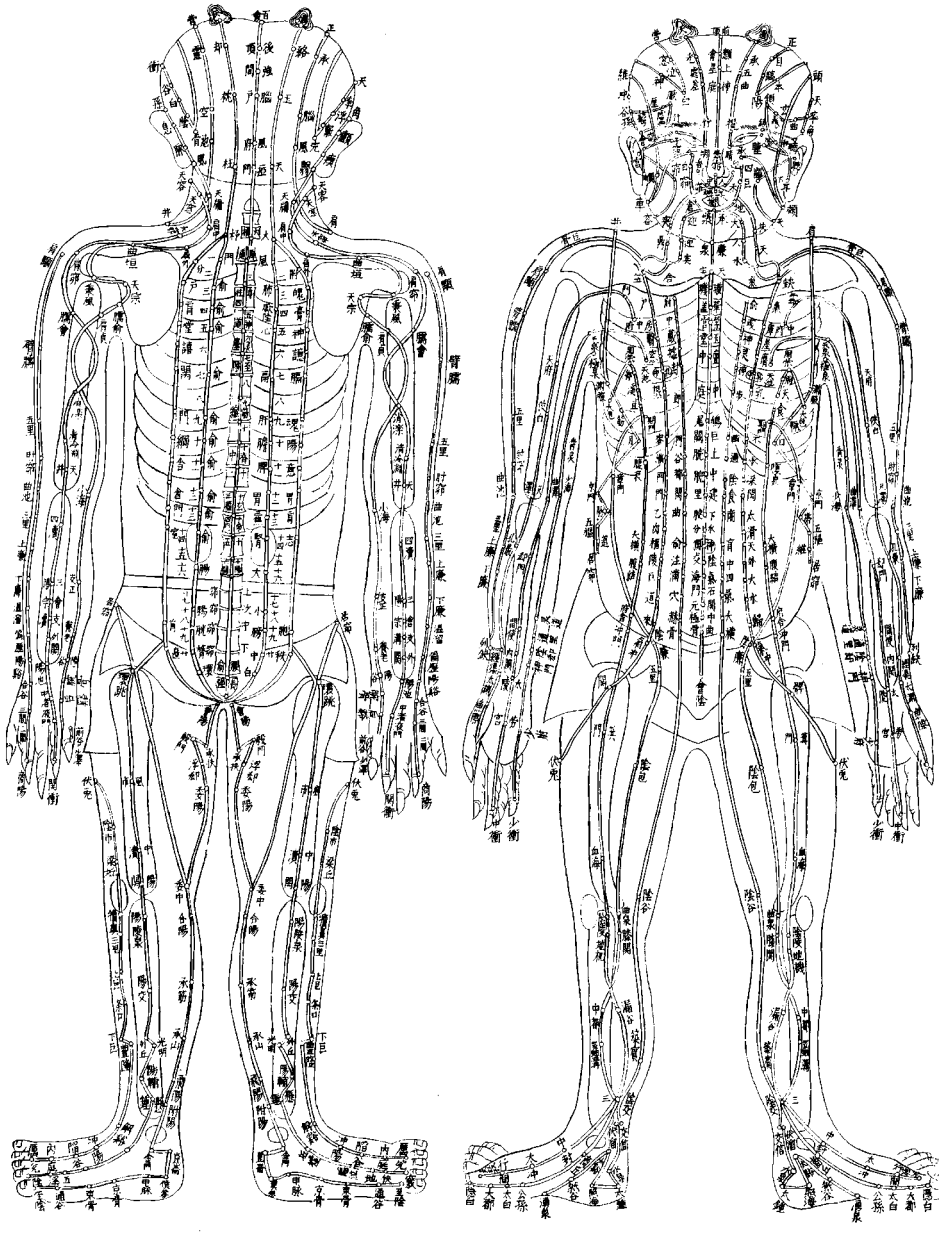

Fig. 3. General views of the circulation tracts and the most important loci for acupuncture and moxibustion, superimposed on a simple skeleton. An exceptionally fine version of an illustration often reproduced in books on acu-moxa therapy, from *Chen fang liu chi* 針方六集 (Six collections of acupuncture procedures, +1618).

are thus in the presence of an important doctrine arising from the idea of the Chinese double microcosm, the body of man corresponding to the State, since both reflect the order of the physical Universe. The basic idea of circulation, which originates unmistakably in the Former Han period, may also be derived in part from a recognition of the meteorological water-cycle – the exhalations of the earth rising into the clouds and falling again as rain.

The question of the origin of acupuncture is surely one of extraordinary interest. Therapists must have closely observed symptoms, especially pain, and their relief by various methods. We suspect that the profound conviction of the organic unity of the body as a whole that was reflected in the acupuncture system may have arisen challengingly out of the phenomenon of referred pain. Perhaps some passages in the ancient Chinese texts not yet noted will justify recourse to this as part at least of the explanation. The relation of transitory pain in the extremities or trunk with passing malfunctions of the viscera is so common an observation of everyday physiopathology that it may well have struck the ancient Chinese physicians with particular force. The secular accumulation of clinical experience too must have convinced Chinese physicians that acupuncture is effective.

Millions of people for something like twenty centuries have received and accepted acupuncture. No one will really know the effectiveness of it, or of other characteristic Chinese treatments, until accurate clinical statistics have been kept for several decades. Western physicians commonly express the view that acupuncture acts purely by suggestion, like many other things in what they often call 'fringe' or 'alternative' medicine. Some medical authors are convinced that it has a basis in physiology and pathology. In matters so uncertain, which belief is the most difficult? This is, we believe, a question of what one might call relative credibility (or perhaps a calculus of credulity). For our part we find the purely psychological explanation of acupuncture much harder to credit than an explanation couched in terms of physiology and pathology, without forgetting the subsidiary role of the mind in all somatic healing.

The practices of phlebotomy and urinoscopy in the West may seem analogous. They had exceedingly little physiological and pathological basis on which to sustain their long-enduring popularity, but neither had the subtlety of the acupuncture system. Perhaps blood-letting had some slight value in hypertension, and extremely abnormal urines could aid in diagnosis, but neither contributed much to modern practice.

Chinese, Japanese and Western laboratories have for decades actively pursued physiological and biochemical acupuncture experiments on animals, where the psychological factor is ruled out. Chinese have conducted clinical tests for a large part of this century, and Westerners since *ca.* 1960. The results so far support this opinion.

The suggestion that the action of the needles may stimulate the production of antibodies by the reticulo-endothelial system is now being tested. It has been a matter of surprise for Western biologists that the acupuncturists claim their treatment to be effective, at least in some degree, not only in diseases such as sciatica or rheumatism where no treatment in any part of the world can be considered very successful, but also in cases of infectious disease where an external causative agent is fully recognised. For

example, it is difficult to believe that in such an entity as typhoid fever acupuncture could be effective; nevertheless that was the claim of the traditional physicians.

However, if the reticulo-endothelial system could be stimulated to produce antibodies in great quantity, possibly by indirect stimulation through the autonomic nervous system, that could explain the results. Alternatively, there may be a neurosecretory effect mediated through the autonomic and sympathetic systems upon the suprarenal cortex, inducing a rise in cortisol production. Again, there may be a neurosecretory influence upon the pituitary gland. A wealth of experimental approaches lies open. It is quite likely that acupuncture results in production of several groups of biochemical agents in the tissues near and far, prostaglandins, histamines and antihistamines, interferons and other antibiotic-like substances, kinins, etc. Whether it acts on gating centres in the central nervous system or in the spinal cord, so that 'all lines are busy' and the pain impulses cannot get through; or whether it is a matter of mobilising the endogenous opiates, those morphine-like derivatives such as the enkephalins and the endorphins, in the brain, or both, we still do not entirely know. This is merely to point out that a typically Western notion of one-to-one cause-and-effect may be too one-dimensional to properly appreciate the complexity of the 'esoteric' ancient Chinese medicine.

Acupuncture as practised in the late 20th century has two main branches: modern analgesia and traditional therapy. It is no good looking for anatomical correlates of the acu-tracts, because they seem not to exist. It is the stimulation at the loci that produces analgesia sufficient for major surgery.[54] The authors have themselves witnessed in China many examples of acupuncture adapted to modern surgery. Although it is no longer used as widely as in the late 1950s, in the heat of its discovery, nevertheless it is extremely important. It was the very first Chinese therapeutic technique that made Western physicians and neurophysiologists sit up and take notice. They had previously not been willing to manifest an interest in anything Chinese, or indeed Asian, but the fact that major surgery had been successfully performed under acupuncture analgesia could not be denied.

The term *ching* 經 has been known in the West only as the name for the linear arrays of acupuncture loci on the surface of the human body that we call circulation tracts. But the word has a much deeper meaning than this, denoting a basic physiological conception in ancient Chinese medicine founded on the theory of the Two Forces (yin and yang) and the Five Elements (*wu hsing*), which recognised six patterns of physiological function and pathological dysfunction. This sense emerges in the ancient and mediaeval Chinese system of diagnosis now called *liu ching pien chêng* 六經辨證 (differentiating the syndrome in accordance with the six *ching* patterns).[55] During the course of a disease these patterns became abnormal in diverse succession according to the character of the pathology.

[54] [Porkert (1974), pp. 197–8, has argued that, although the concept of loci is based on empirical data, the tracts, as the pathways that connect them, 'are only the result of systematic speculation'. Medical school acupuncture textbooks since 1960 have tended to avoid discussing the tracts as physical structures. This change has not generally affected books written for foreigners. On this point see Sivin (1987), pp. 142–5. – Editor]

[55] [See the Chinese account translated in Sivin (1987), ch. 7–9, and the analysis based on intensive clinical observation in Farquhar (1994), pp. 154–61. The translation above follows her usage. – Editor]

(7) The contrast between traditional-Chinese and modern-Western medicine

The time has now come to draw up a balance-sheet of the merits and demerits of traditional-Chinese as opposed to modern-Western medicine. In the first place, modern-Western medicine is based upon the modern sciences of anatomy, physiology, pathology, pharmacology, immunology and so on. None of these sciences was available anywhere in the Middle Ages, when traditional-Chinese medicine was forming its developed system; but as the modern sciences became reductionist they have found history irrelevant. This decisive break with the past has made it feasible for modern-Western medicine to recognise specific disease entities, whereas traditional-Chinese medicine still seldom sharply distinguishes symptom, syndrome and disease.

Modern-Western medicine is generally recognised to be particularly good for acute diseases, as in the case of antibiotics. One regrettable effect of modern-Western medicine is that the active principles in certain drugs, as identified by modern pharmacology, are administered as simple agents, producing side-effects on the patient. These are sometimes very serious.

When we turn to look at traditional-Chinese medicine, we have to recognise at once that the concepts with which it works – the yin and the yang, and the Five Elements – are all more suited to the times of Hippocrates, Aristotle and Galen than to modern times. They are unquantifiable, and indeed Chinese did not attempt to quantify them. Traditional-Chinese medicine knows nothing of the atomic and molecular conceptions so characteristic of modern biochemistry. Its background is very inadequate and indefinite.

A feature in which traditional-Chinese medicine is extremely good is its organic approach to illness. Two patients with identical symptoms may be given quite different treatments, depending on their backgrounds, which the physician has enquired about, and the general pictures of their body processes as ascertained in the examination. Another excellent feature of traditional-Chinese medicine is its notion of disease as a process that passes through various stages. This can lead to some very sophisticated cures. Generally speaking, a strength of traditional-Chinese medicine lies in curing chronic diseases. Thus we can see how valuable it would be if the insights of traditional-Chinese medicine and modern-Western medicine could be united.

(8) The possible integration of traditional-Chinese and modern-Western medicine

A topic of general concern is the possible unification or integration of the medical systems of the East Asian peoples with modern medicine. It has to be admitted that traditional-Chinese medical theory is mediaeval in character, because the yin and yang, the Five Elements, and innumerable other concepts are not congruent with modern scientific medicine. They are really parallel with the four elements of Aristotle, which cannot be put into modern scientific terms at all, or the four humours of Galen. They are neither verifiable nor falsifiable. Nevertheless Chinese physicians, whose clinical

insights were truly profound, used these concepts as a trellis-work on which to hang their understanding of diseases.

The fact that the terminology and the concepts are mediaeval, whereas the concepts of Western medicine are essentially modern, does not mean that we cannot look forward to an ecumenical medicine of the future, which should embody all the clinical insights as well as the techniques characteristic of East Asian medicine, while remaining firmly based on modern biological science.

The Chinese government has for decades strongly supported research to assess the therapeutic achievements of traditional medicine by the standards of modern science, and to explore the possibilities of synthesis. It is equally important to accommodate modern scientific medicine to the practices and ideas of traditional-Chinese, traditional-Japanese and traditional-Indian medicine. Modern-Western medicine must be prepared to learn as well as to teach.

For example, medicine could become much more organicist or holistic than it is, and it could avoid active principles that are too powerful when used alone. It could use active principles in natural form, just as is done today with Chinese-style (*kanpōyaku* 漢方藥) prescriptions in Japan, and products of modern pharmacognosy elsewhere. There has been considerable progress in using modern biochemical and immunological methods to test their effects.[56]

This then is as far as we can go in our account of Chinese medical ideology and what ought to be done about it. One might feel that if any type-case were needed to demonstrate the moulding of medicine by the culture in which it grew up, Chinese medicine would be such a case. But, on second thoughts, is there any reason for regarding it as more 'culture bound' than Western medicine?

To think of the latter as self-evidently universal in application may be an illusion of those who happen to have been educated in that occidental Semitic–Hellenistic culture. True, it was destined by a series of historical accidents to give rise in the later stages of the Renaissance to specifically modern science. Western medicine became modern only in the 19th century as it was rebuilt upon the assured results of modern scientific physiology and pathology. The traditional medicines of the Asian civilisations are facing this transition only in our own time. Western medicine cannot become truly and ecumenically modern until it has subsumed all the clinical experience, special techniques and theoretical insights achieved in the non-European medical systems. Then will have occurred that fusion of Eastern and Western medicine to which we have referred above.

In the last resort, all medical systems have been 'culture bound'. Modern medicine is separating from its local historical roots only insofar as it partakes of the universality of modern mathematised natural science. Everything that the Asian civilisations can contribute must and will, in due course, be translated into these absolutely international terms. Only thus will medical science be able to free itself from connections with particular cultures and to minister universally to a united humankind.

[56] [For a typical modern guide to occidental pharmacognosy see Tyler (1988) or Trease & Evans (1989). Liu Shou-shan 劉壽山 (*1963–92*) is a massive collection of abstracts on scientific research in China. – Editor]