

THE MODEL: an adequate representation of TCM theory ? part C

This paper continues on from two previous papers; THE MODEL: an adequate representation of TCM theory ? part A, and part B., which are available for download from ACU Centre's website.

A Preliminary View of the Yin Divisions

The material presented here is a very preliminary representation of how the Yin Organs of the Six Divisions (Table 2) may be viewed from this integrated perspective - particularly in tier one. Each diagram (Figures 12, 13, 14) presents an integrated notion of Depth for one of the three Yin divisions.

Also represented is the relationship the Yin Organs may be thought to have with their Yang partners. Consequently all the Zang Fu are shown. These diagrams build on the analysis of the Yang Organs already undertaken - papers A and B.

Although they are preliminary representations which require considerable further discussion in the TCM and scientific communities, there are initial parallels drawn for each TCM Organ which allows the task of juxtapositional analysis in this context to proceed.

Each diagram seeks only to represent the schematic functional relationships of the Zang Fu within the gross anatomical body. There is no attempt to include the homeostatic hierarchy of each Orb, although by identifying the extracellular and intracellular compartments as Depth levels C and D it is possible that all levels of the hierarchy could be so included.

Each Division is discussed briefly, with very brief suggestions as to which WMB functions may be identified with a Division or with a particular TCM Organ. Such suggestions are broad in scope and kept to a minimum. They are not comprehensive but are intended as introductory snap-shots. Some may have been made by previous commentators, and so may already have a measure of acceptance within the TCM community (Porkert, 1974; O'Connor and Bensky, 1981; Maciocia, 1989; Soulié de Morant, 1994).

Because each Zang Fu is regarded here as encompassing a complex homeostatic loop of large effect, there is the possibility (in juxtapositional analysis) that quite a diverse/ broad range of functions may be encompassed by an Organ within tier one. This is an area which requires considerable further research and professional debate.

TAI YIN: Lung/ Spleen

Figure 12 illustrates the Tai Yin Division as well as the Yang partners of the Lung and Spleen, namely Large Intestine and Stomach respectively. It is thought to encompass the respiratory system and delivery of nutrition to cells. It is also thought to include intracellular respiration, with mitochondria included in the activity of this Division.

TCM Lung: Respiratory system. Lungs and Large Intestine are both involved in removal of waste (carbon dioxide, faeces). Cyclical variation in abdominal pressures with respiration may have a role in moving fecal matter in the large bowel. Certainly breath holding may play a role in defecation, and dilation of the anal sphincter causes reflex deepening of inspiration (Vander et al., 1991).

TCM Spleen: Digestion in the duodenum via pancreatic exocrine secretions (Porkert, 1974; Soulié de Morant, 1994; Davis, 1992, 1994a,b). Maintenance of glucose delivery to cells via insulin and glucagon. Stomach and Spleen have a close relationship, with the Stomach's role being that of reception and initial digestion (stomach), and the Spleen's thought to be continued digestion (pancreatic) and delivery of nutrients into cells. Included is the WMB spleen, and possibly blood proteins acting as a transport mechanism for other molecules.

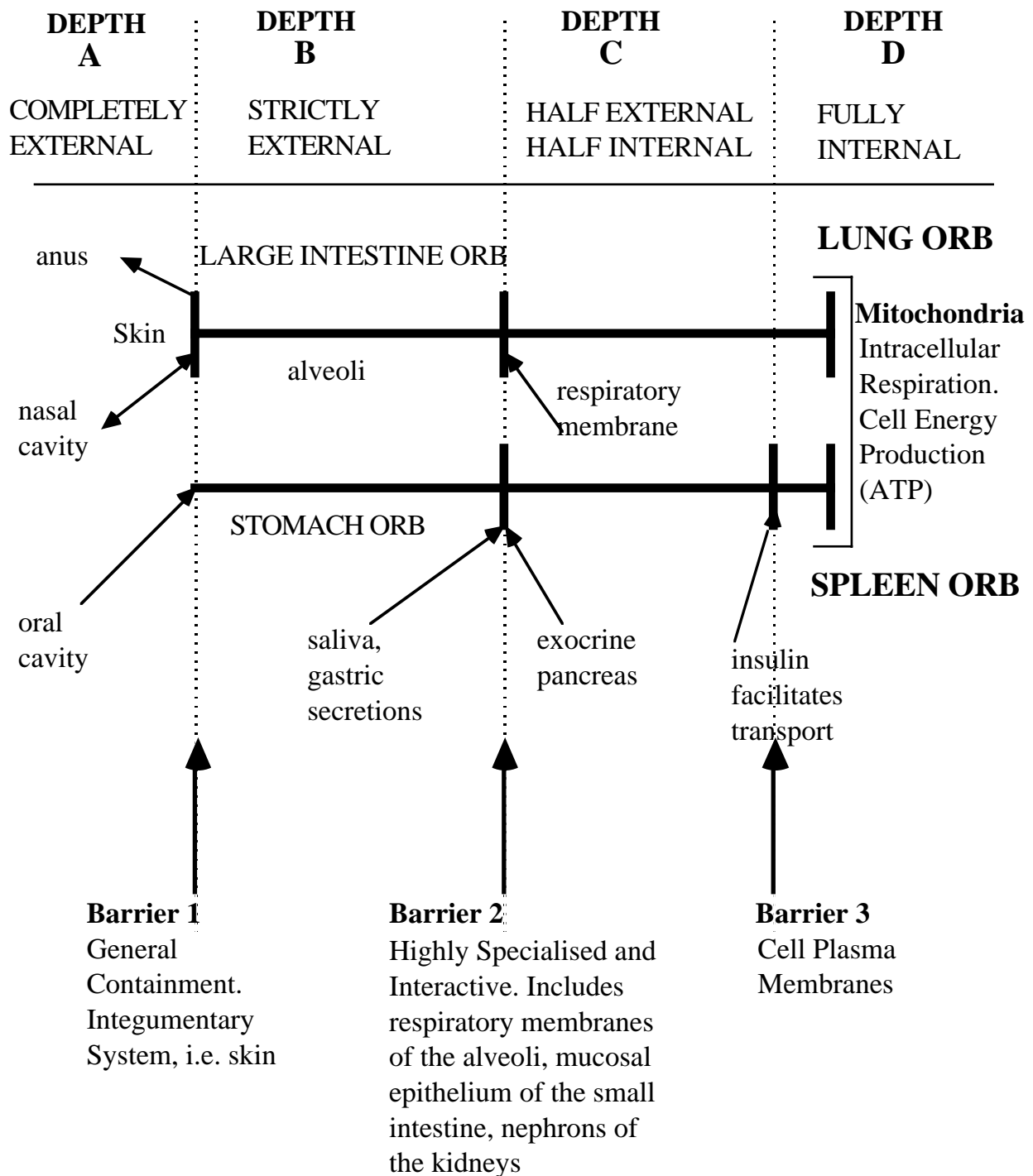


Figure 12 An Integrated Notion of Depth (in Tier One), Combining the Perspectives of TCM and WMB.
Zang functional focus: Tai Yin

JUE YIN: Pericardium/ Liver

Figure 13 illustrates the Jue Yin Division together with its related Fu.

Pericardium function in tier one is thought to reflect the impact of emotions (tier three) on homeostatic activity in tier two. The Pericardium is therefore thought to participate in establishing general emotional parameters which influence the activity of the autonomic and endocrine systems. In this sense it reflects on the periphery the current (and perhaps more superficial or labile) activity of the Shen.

In tier one the Liver has a significant impact on the constituents of blood plasma, and therefore on the contents of the San Jiao.

TCM Pericardium: Limbic influence on the autonomic and endocrine systems generally, with hormones delivered by the San Jiao. Hypothalamic influence on the pituitary gland and brain stem is included. Specific hormones may be associated with particular Zang Fu - e.g. insulin and glucagon with the Spleen.

TCM Liver: Many metabolic roles - excretion and degradation of various molecules, cholesterol synthesis, metabolism of nutrients, endocrine functions, clotting functions, plasma protein synthesis. All these have an impact on the current constituents of the San Jiao. The Liver and Gall Bladder have a close relationship re bile production and delivery.

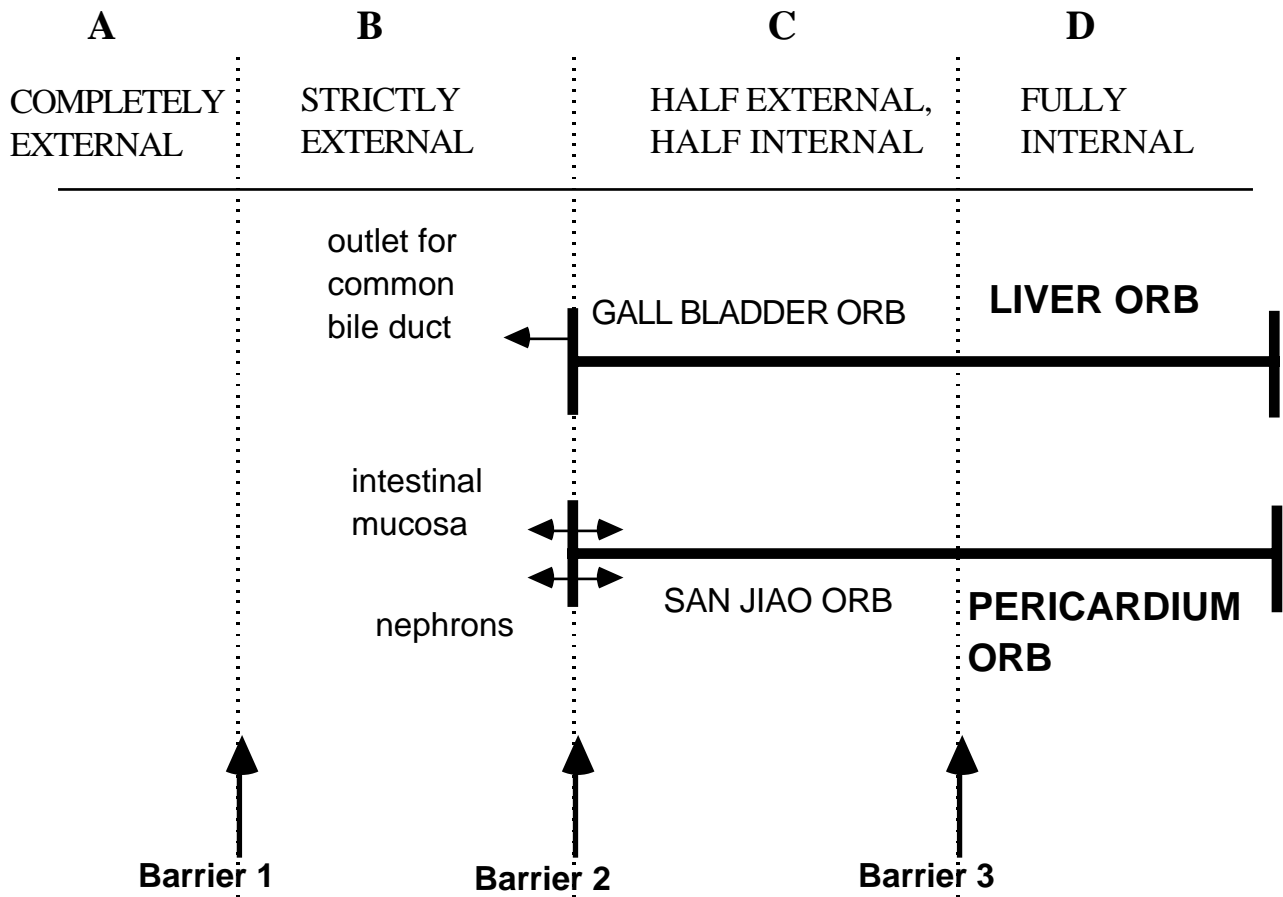


Figure 13

An Integrated Notion of Depth (in Tier One),
 Combining the Perspectives of TCM and WMB.
Zang functional focus: Jue Yin

SHAO YIN: Heart/ Kidney

The Shao Yin Division is illustrated in Figure 14, together with its related Fu. This is the most Internal of the Six Divisions, dealing with the Fundamental Substances Shen and Jing.

TCM Heart: Personality results from integrated function of the nervous system - particularly the forebrain. This is thought to be the province of the Shen. Included is the heart organ and its control, and the cardiovascular system generally. The Heart's relationship with the Small Intestine is thought to represent the participation of the Shen in an individual's interaction with their immediate external environment, that is, in the absorption of nutrients from the gastrointestinal tract.

TCM Kidney: Genetic endowment is thought to have a relationship with Jing. Long term patterns of growth, development, and maturation are included. Maintenance of general fluid levels is included (refer to the papers on the San Jiao) as is kidney participation in urine production. Bladder and Kidney have a clear and close relationship (Davis, 1995). Bones, bone marrow and the brain (mental function or capacity) are included within the scope of the TCM Kidneys.

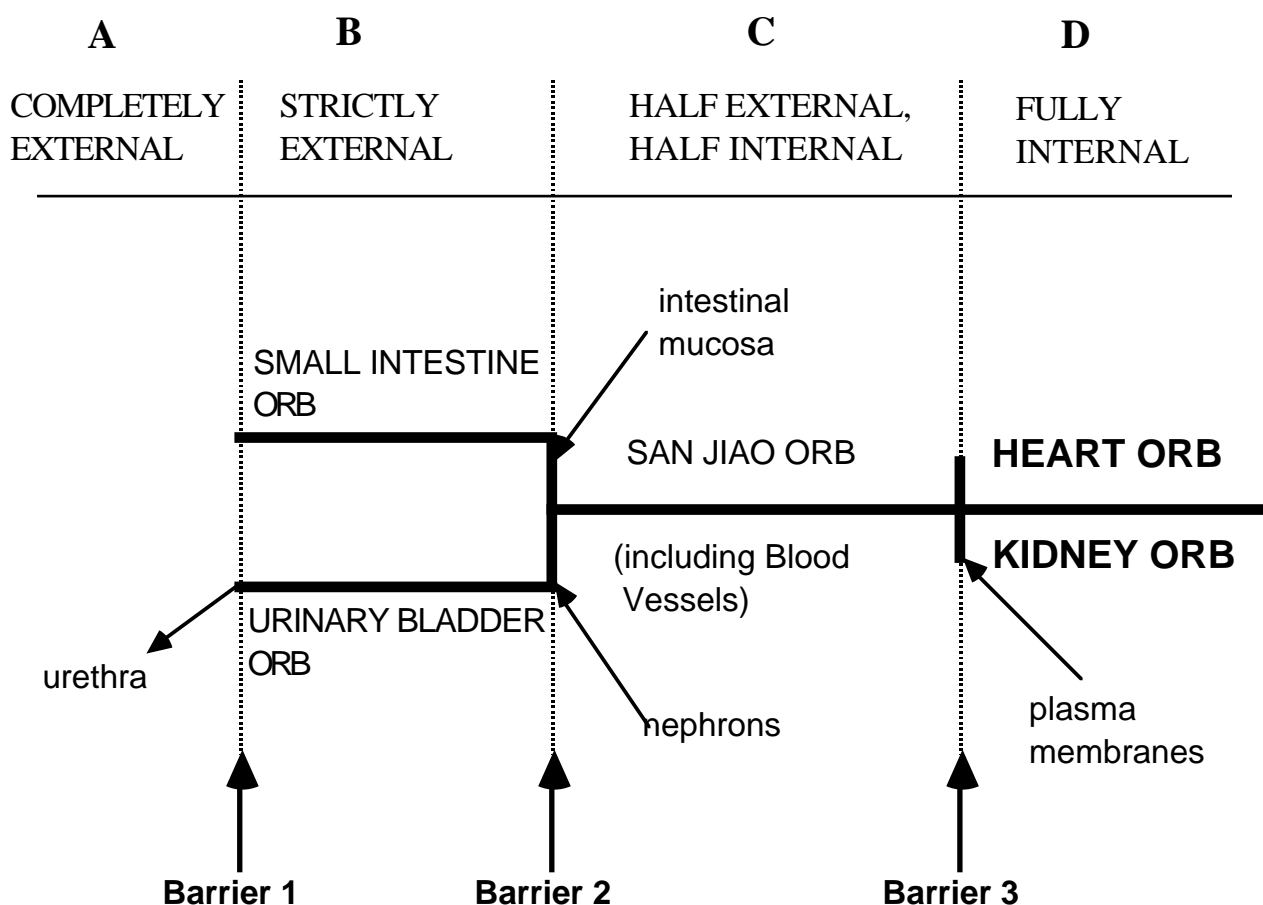


Figure 14 An Integrated Notion of Depth (in Tier One),
Combining the Perspectives of TCM and WMB.
Zang functional focus: Shao Yin

Discussion

This brief discussion addresses some of the unique characteristics and attributes of traditional Chinese medicine and attempts to clarify them within the context of the model. In drawing parallels between TCM and western bioscientific knowledge such discussion is designed to be elucidatory, but it is possible that at times there may be some degree of juxtapositional speculation in the explanations offered. This is thought to be largely a consequence of developing parallel and common imagery, and equivalence of ideas, across the paradigms - as discussed in the Introductory paper under 'methodology'.

Although the Meridians may be thought of as functional neural/ endocrine pathways they also have a measure of anatomical reality because neurons and endocrine cells of the central nervous system are necessarily involved (Depth level D). These pathways incorporate higher

brain functions as well as functional (reflex) homeostatic loops to the physical organs of the body. It is within these homeostatic loops that Organ imbalances are thought to mainly manifest.

Viewed from this perspective the Jing Luo should become quite comprehensible (to the western mind), so that one of the great 'mysteries' of TCM becomes laid bare - the Meridians are not anatomical entities to be located on the periphery. It is just that Qi sensation appears to be experienced there. Indeed the functional complexity and interconnectedness of tier two may be thought of as being summarised and encapsulated by the Jing Luo.

The Jing Luo is 'reflected' onto the periphery in the sense that palpation or treatment of acupuncture points and Meridians provides direct access to tier two, with the concomitant possibility (likelihood!), that homeostatic regions are accessed in therapy for clinical benefit.

Each primary Meridian may be considered to encompass specific types of homeostatic activity in tier two which relates to (participates in) the functions of a particular Zang Fu. Hence various groups of neurons within tier two function as a coordinated and integrated group, and so participate in the functions of a particular Orb. Acupuncture stimulation is thought to access these neural groups with modulatory/ therapeutic benefit.

Individual points may be thought of 'fruiting' or 'impact' points where the therapeutic effect of acupuncture stimulation has a definite, known and predictable impact.

The possibility of individual point function thus becomes quite real. Qi sensation (e.g. dull aching pain, heat, etc.) from any acupuncture point enters tier two at a slightly different location to any other, and so may have a slightly different impact on homeostatic mechanisms.

It also makes sense to have Meridians on both sides of the body as tier two is a bilateral region with very much the same functions on either side. The Jing Luo therefore is not just a conceptual device, but appears to offer quite an appropriate representation of functional tier 2 relationships.

The various types of Meridians (refer to TCM Theory page), plus internal Meridian pathways and special connecting points between Meridians, may thus be seen to be composed of various groups of neurones, each with their different functional roles.

Intersecting points on more than one Meridian may be points which participate in more than one of these homeostatic neural groups, and thereby function (almost literally) as intersections or crossroads. Which is exactly how they are represented in Meridian theory and diagrams.

Special groups of points may also be understood in these terms. Points such as Associated Effect points, Mu points, Command points, Xi-cleft points, Yuan points, Lower He points, Eight influential points, Eight Extra command and Coupling points, may all be seen to access tier two at different locations for similar types of impacts on different neural groups (Orbs).

Face, hand and foot acupuncture appear to fit this scheme too, as does ear acupuncture. Three cranial nerves innervate the auricle (CN V, VII, X) as well as C₂ and C₃ spinal nerves. Needling any of these acupuncture microsystems accesses tier 2 - it is axiomatic.

The fact that the functional organisation of the CNS, and the Orbs, reflect in a general (and at times specific) way the anatomical structure of our bodies (the Meridians and points are on the

arms, legs, trunk, head and neck) simply mirrors the way we animals are constructed. It is no less true of the other animals on which acupuncture is practised to good effect.

Meridians drawn on the body surface represent this central organisation, and access to homeostatic regions is provided by Qi sensations from points all over the body.

This view also allows for some measure of 'overlapping' of Zang Fu functions. For example Liver and Spleen Disharmonies are sometimes quite difficult to distinguish in clinic, or at least are sometimes closely inter-related. It could well be that very closely related groups of neurons (but not necessarily exactly the same) are involved in their function, hence the differential 'haziness'. Certainly Liver and Spleen Meridians are in very close proximity on the medial leg and thigh. [Indeed all Yin Meridians of the lower limb meet at acupuncture point San Yin Jiao (SP 6) (Ellis et al., 1988; O'Connor and Bensky, 1981; TCM Theory page)].

The linking of the Meridians and Zang Fu as Yin Yang partners may also be seen to be a matter of functional relationships between neural groups. Given the importance of Yin Yang philosophy in TCM it is perhaps no surprise that Yin and Yang Meridians of the same Element are always found on the same limb, suggesting close physical proximity of the relevant neurones within tier two, as well as close functional relationships.

Further, the normal directional flow of Qi within a Meridian might be viewed as representing the 'normal' way in which the various neural groups are interconnected. A preponderance of action potentials moving from neural area 'A' to neural area 'B' may reflect normal meridian flow. Any other preponderance of flow could well reflect Disharmony. This may also give a measure of support to the TCM notion of the Horary clock, where a particular order of flow of Qi in the Meridians is stipulated.

Plasticity of neural connections (functional and anatomical changes at synaptic connections over time, inc. axonal growth) might explain why it is that some of the most experienced acupuncturists claim that the actual location of points may vary slightly over time (on the same person). This suggests that palpation should be emphasised when finding points, so that the location with the best Qi sensation is identified and utilised, rather than a location which seeks anatomically defined precision. Therapeutic effectiveness would thereby be enhanced.

Although mechanisms of analgesia resulting from acupuncture have received considerable interest in neuroscience circles in the last fifty years or so (Bensoussan, 1991; Needhan and Lu, 1980), the explanation of acupuncture and TCM theory offered in these papers suggests that analgesia is only a special case. Despite attracting considerable recent attention, analgesia may be viewed as just one of acupuncture's therapeutic effects.

This approach to the Zang Fu also provides a measure of explanation for the separation of functions which is found in the TCM teachings. Each Meridian has symptoms of its own which are separate from those of its pertaining Zang Fu. Those of the Zang Fu are thought of as being Deeper (in the Chinese sense of importance to the individual) than those which are purely Meridian based.

This can be explained in this context by the observation that Meridian symptoms are those that are mainly due to imbalances within the homeostatic hierarchy, whereas the symptoms of

the Zang Fu are those which have progressed (got worse) to become housed in the functional activity of the organs in tier one as well. As disease progresses over time Meridian signs and symptoms will commonly go Deeper. It should be apparent why - homeostatic control systems become unbalanced initially (Meridian symptoms), but eventually the (complete) Organ itself suffers (Zang Fu symptoms). There is a genuine sense of progression here - Superficial to Deep, less to more significant.

TCM also claims to treat disease while it is still in the realm of 'imbalances or Disharmonies', that is, before it manifests as a full-blown western type pathology. This would appear to be a matter of treating Meridian signs and symptoms as discussed above, before the Organs are seriously involved.

This approach goes a long way to explaining why sometimes prescriptions of points are a useful adjunct in the clinic - basically because many illnesses have a common spectrum of imbalances. Particular points which have been found to be useful in the past remain relevant in addressing sites within the homeostatic hierarchy which are regularly disordered in a given illness. eg. Ding Chuan for asthmatic wheeze (O'Connor and Bensky, 1981). [Although this does not obviate the need for a proper individual-specific TCM diagnosis in each case].

It also appears to shed light on such TCM terms as 'patterns of Disharmony', 'energetic imbalances', and 'Organ syndromes'. These terms may now be seen to reflect disorders of function which occur (initially) in tier two, very frequently before a western style pathology has become fully apparent. In such cases functional neural groups would not be working together quite as they should (in health), so a 'pattern of Disharmony' becomes manifest, reflecting variation from normal function. [Such Disharmonies in fact help define the parameters of 'normal' (healthy) function for an Organ].

Such language would seem to be quite appropriate. The term 'pathology' implies something more serious and well and truly housed in the organs of tier one. A pathology may therefore be regarded as a more extreme or more serious presentation of a pattern of Disharmony.

This view supports the basic healing ethic of TCM (theory, practice and language) which is one that seeks balance and harmony (Kaptchuk, 1983; Maciocia, 1989; Wiseman et al., 1985). Clearly in terms of WMB it is homeostatic balance which is sought.

However in TCM the reason for lack of balance may be due to purely internal Disharmonies, or result from an individual's wider external environment - physical, relationships, family, social and political environments. Perhaps even their spiritual environment. In WMB these would generally be lumped together as 'stress', and not necessarily addressed or considered at all in the therapeutic process.

For TCM, health will follow once balance has been restored in the Meridians and Zang Fu. Clearly once homeostatic mechanisms are functioning correctly/ appropriately, health may be expected to follow.

Finally, it is often said that TCM has no concept of the central nervous system other than as a repository for Marrow, yet the analysis in these papers suggests that it embraces the CNS

within the very core of its theory and practice, and in doing so appears to accurately represent bodily function *in vivo*.

Application of the model to the San Jiao is undertaken as a specific test of its elucidatory value. Refer to the various papers on the San Jiao, available for download from Acu Centre's web site [West meets East I].