THE PULSE AND THE INDIVIDUAL

I. INTRODUCTION

Chinese medicine is distinguished from allopathic medicine in a variety of ways, one of which, perhaps the most important, that it possesses the tools to access an individual beyond their `condition' or `disease'. We can delineate a person with Multiple Sclerosis from the disease Multiple Sclerosis, a person with Schizophrenia from Schizophrenia. Largely people identify their individuality with their psychological selves, on which our discussion of the individual will concentrate in this paper. [We do this with the full understanding that apart from this egocentric perception, in the larger of view of physiology, the physical and psychological `individual' are indistinguishable.]

We can communicate this to the patient illuminating who they are in ways that they have not been able to articulate to themselves, and we can do this quickly. This profound and shared understanding creates a quick and strong bond between practitioner and patient that can otherwise take time, if ever achieved, and is usually bereft with all of the issues that arise when through verbal inquiry, an authority, the doctor `analyzes' the deeper recesses of another person's personality.[i]

Through two case studies this paper explores the capacity of Contemporary Chinese Pulse Diagnosis [CCPD] to reveal the psychological individual, as well as the opposite capacity of the patient to obfuscate the pulse's ability to know them.

I must make it clear that each impression made from the pulse must ultimately require confirmation from the patient as well as from other supporting signs before any management plan based on these findings is implemented.

Familiarity the CCPD pulse form and the system of pulse diagnosis that it represents is not necessary to the comprehension of what follows. Simply allude to the positions on the form and follow the interpretations in the text that are important to the message of this paper. We are not instructing pulse diagnosis, only demonstrating one significant use of a sophisticated system that can only be learned by hands-on instruction over time.

II. HISTORICAL PERSPECTIVE

There are many models of pulse diagnosis practiced within East Asian Medicine. Contemporary Chinese Pulse Diagnosis (CCPD) employs a 3-depth model, as such; it incorporates earlier models from the Nei Jing, Li Shi Zhen (1564), and Zhang Jie Bing (1624).

Like the Nei Jing Su Wen model, Yin organ energetics are emphasised. Therefore the Yin organs (Heart, Liver, Lung, Kidney Yin and Kidney Yang) and the Stomach are seen as the significant energetic factors and are assigned the 6 pulse positions. (Ni 1995, p. 47) Incorporating the three depths, the Qi depth represents the contribution of each Yin organ to the total Qi of the organism; the Blood depth, the blood; and the Organ depth relays information of the organ itself.

Other similarities are found in the organization of pulse positions. The Nei Jing model posits a holographic representation of the physical form at the radial artery, with the distal positions reflecting the chest, the middle positions the epigastrium to the abdomen and the proximal positions the abdomen to the feet. (Ni 1995, p. 69) Li Shi Zhen (1564) views the pulse similarly with his model of the Three Burners. (Li 1985, p. 3) Li also describes palpation of the superficial, middle and deep aspects of the pulse. (Li 1985, p. 5) These considerations have likewise become the standard model used in contemporary China.

Zhang Jie-Bing's (1624), location of the sternum at the right distal position anticipates Dr Shen's diaphragm position. (Zhang 1624; Hammer 1993) It is also interesting to note that Zhang Jie-Bing similarly notes the Large Intestine in relationship to the left proximal pulse and the Small Intestine in relationship to the right proximal pulse, though in a more superficial position. (Zhang 1624, Hammer 1993) Dr Shen's positioning of the Pericardium is also similar to Zhang Jie-Bing. But perhaps the most intriguing aspect of this pulse system lies in the story of the two men associated with its development in modern times. Dr John HF Shen and Dr. Leon Hammer, M.D. are listed in Volume I of the AAAOM's `Pioneers and Teachers AAAOM Historical Project'. Their association lasted for over 27 fruitful years, until Dr Shen died in 2000.

Dr Shen trained in the lineage of the Ding tradition, both as a formal student in the Shanghai College of Chinese Medicine (Scheid 2007, p. 394) and as an apprentice in this important current of medical scholarship. After he joined the intellectual exodus from China prompted by the Communist revolution and continued to practice in Taiwan and Southeast Asia. Whilst in Vietnam, where he is believed to have encountered a pulse tradition passed down from father to son in the Mekong delta. The model documented in *Fourth Uncle in Mountain* is strikingly similar to that of Dr Shen. The pulse positions described in this text are nearly identical to that in CCPD. (Quang 2004, pp. 120-122)

Contemporary Chinese Pulse Diagnosis is the result of my refinement of the pulse system which I inherited through the tutelage of Dr John Shen. With 80 qualities, 6 Principal positions, 22 Complementary positions, and 8 Depths it

future health. The capacity to realise Chinese medicine in such depth and breadth has inspired many practitioners who seek this realisation to master its complexity.[ii]

II. ILLUMINATION

A. CASE ONE - IMPASSE

H. is a twenty-two year old student who has consistently refused to see a physician and finally acceded to letting me take her pulse in her mother's presence provided I asked her no questions and received no history from her mother. Therefore I knew nothing about her when I took her pulse. The following is the pulse form with the qualities important to our discussion in bold:

Contemporary Chinese Pulse Record **Refer by:** **Date:** 6/12/06

Name: #79	**Gender:** F	**Age:** 22	**Hgt:** 5'8"	**Wgt:** 190	**Occup:** Student

Rhythm: Rate ▲ at Rest – especially with movement

Rate/Min: Beg 62 **End** 58 **W/Exert** 90 **Chng** 32

Other Rates During Exam:

First Impressions of Uniform Qualities
Muffled (2); Tense; Robust PND (3);
Occasional Bursts of ↑ Pounding

Depths
Above Qi: **Cotton (4+)**
Qi: Tense; Robust PND (2+)
Blood: Heat
Organ: Tense; Robust PND (3)
O-B: Tense; Robust PND (2+)
O-O: Tense; Robust PND (2+)
Waveform **Hesitant**

Left Side: **Right Side:**

PRINCIPAL POSITIONS

L: **Distal Position**	**R:**
Tense; **Robust PND (3+);** **Slippery (3);** ~ Rough Vibration (3); **Inflated**	Muffled; Thin; Tight; Smooth Vibration → Rough Vibration; Intensity ▲ (3); ~ Slippery; ↕ F/A
Pericardium	
L: **Middle Position**	**R:**
Muffled (2); Intensity ▲ (2); Wide; Qi Depth ↓; Rough Vibration (2); **↓ Substance (3);** **Diffuse (3)** ↕ Tense; Robust PND (2)	Muffled (2); Tense; Qi Depth ↓; Robust PND (2+); Intensity ▲ (3)
L: **Proximal Position**	**R:**
Deep; Feeble; ↕ Tense;; Robust PND (1/2)	**Deep**; Choppy (3+)

COMPLEMENTARY POSITIONS

L: **Neuro-psychological**	**R:**
Muffled (4); Doughy; Rough Vibration (3)	Rough Vibration (3); Intensity ▲ (2+); Doughy; Muffled (4)
L: **Special Lung**	**R:**
Tense; Robust PND (3); Slippery (3)	Tense; Rough Vibration (3); ~ Slippery (3); Intensity ▲ (3) **Pleura** --

Heart
Mitral Valve: Muffled; Intensity ▲ (3); ~ Smooth Vibration; **~ Slippery**
Enlarged -- **Large Vessel** --

L: **Diaphragm**	**R:**
Inflated (1/2)	Inflated (1+)

Liver
Engorged:
Distal -- **Radial** -- **Ulnar** P
Gall Bladder:
Thin; Hard – Leather; Intensity ▲ (2+); Slippery; ~ Choppy

Spleen-Stomach
Esophagus -- **Spleen** P
Stom-Pyl. Exten:
Muffled (3+); Deep; Feeble; Reduced Pounding

Peritoneal Cavity/Pancreas P
Duodenum

Large **Intestines**	**Small**
Muffled (3); Tense – Feeble; ↕ Absent	Muffled; Tense; Intensity ▲ (3) ⇔ F/A ~ Rough
L: **Pelvis/Lower Body**	**R:**
Muffled (4+); Tense; Intensity ▲ (2); Deep	Deep and Feeble; Rough Vibration; Intensity ▲ (2

Upper:
Midd

Fan Quan 1/2

OBSERVATION

Restricting ourselves for the moment to our goal of defining the individual let us examine this pulse form for clues to the uniqueness of this young woman's psychological condition. The qualities particularly important to our discussion are highlighted in bold.

Beginning at the top of the form on the right side at the position under Depths we see `Above Qi' as a *Cotton [4+].*[iii] [The number after the quality ranges from `0 to 5' with the least serious the lower the number]

> This is a sign of a person being and feeling and resigned to being `stuck' in life similar to the intention of Thoreau's statement that "all men lead lives of quiet desperation" I call this the `resignation' pulse.
>
> People with this sign are aware of suppressing feelings and actions that leave them without the power and/or courage to move forward in life. [Suppression is distinguished from repression in which the former there is awareness of their dilemma, whereas in the latter, feelings and ideas, are out of awareness]

If we ask ourselves why this young lady feels impotent to act we find a possible answer at the proximal positions whose qualities of *Deep and Feeble* and *Changing Qualities* [Separation of Yin and Yang] suggest profound Qi-Yang-Essence deficiency.

> Kidney Qi-Yang-Essence is the foundation on which the function of the entire organism rests and from which it derives <u>the will power as well as the courage and faith to move and act in the face of the never ending unknown</u>.[iv] The qualities indicating this deficiency could explain the *Cotton [4+]* indicating her extraordinary immobility, inability to act and feeling of " quiet desperation". [She later revealed being born with a congenital defect (Arnold-Chiarri Syndrome). Congenital defects are associated with Kidney Essence deficiencies].

If we ask ourselves does she have a <u>direction for action</u>, we examine the Left Middle Position we find considerable signs of

deficiency, *Qi Depth Diminished [↓], Reduced [↓] Substance [3]; Diffuse [3],* all signs of Liver Qi deficiency and *Changing Qualities*, a sign of the severe Separation of Yin and Yang.

> As elucidated in DRRBF the Wood Phase [Liver and GB] involves direction, the ability to advance and retreat appropriately to conditions involving short and long term planning and decisions. [v]

And if she had the power to act and the direction, does she have the emotional stability to carry forward her suppressed intentions? Here we turn to the Rhythm[vi] in the upper right hand corner of the chart, to the Left Distal Position[vii] and to the Mitral Valve Position[viii]. We find here evidence of instability in the following qualities and the conditions they indicate.

> Wide mood swings are indicated by the *Rhythm: Rate Changing at Rest* and *Phlegm Misting the Orifice* [Left Distal Position-Slippery (3). The former and *Robust Pounding [3+]* at the Left distal Position are signs of and Excess Heat in the Heart and Heart Qi Agitation.
>
> Further signs of a desperate attempt to maintain emotional instability are signs of a Obsessive-Compulsive thought pattern as evidenced by the *Hesitant Wave* [that is also a sign of Heart Yin deficiency].
>
> In the same venue are indications of excessive worry by an *Increase of Rate on Exertion of 32 beats/minute*, a sign of Heart Blood deficiency, the result of and further cause of excessive worry.
>
> We find evidence of difficulty with concentration and memory with the Phlegm Misting the Heart Orifices[ix] [Left Distal Position-Slippery (3), with *Slipperiness* at the Mitral Valve Position. The possibility of a Jealous and Vengeful Personality is associated with the *Inflated quality* at the Left Distal Position, a sign of Heart Qi Stagnation from Heart shock probably of recent origin. [The *Inflated* quality is associated with trauma in a person with mature qi or with a breech birth. A *Flat* quality would appear in the Left Distal

Position if the shock occurred when she was much younger and her Qi more immature, or with the cord around her neck at birth. Earlier or later `insult' is determined by a deficient (earlier) or sufficient (later) proximal positions (Kidney Essence and from the history]. Revealed later was the death of her beloved brother [motor cycle accident] when she was 15 years old.

DISCUSSION

When presented with these findings the patient expressed surprise and relief that someone could describe exactly how she felt even more precisely than she could without knowing anything about her.

Otherwise she expressed relief that we could arrive at a plan to address the above that included the practice of Qi Gong for her Kidney Yang-Essence deficiency, and herbs and acupuncture for the instability in her Heart and the Qi-Yang deficiency in her Liver.

That her chief complaint was depression [described below] was predictable. The frustration accompanying an inability to act in one's own behalf is usually accompanied by depression. If one cannot move forward one retreats or is frozen. Consulting an allopathic physician she would have been referred to a psychiatrist who would have prescribed medication for that condition and perhaps psychotherapy. However valuable the latter, psychotherapy is unable to address the energetic aspects of her condition without which, in my experience, recovery is much more difficult.

The pulse delineated many other conditions that the combination of which are likewise unique to her but are outside the scope of this article and would require space irrelevant to the focus of this article. Excluding already discussed findings, they are listed here for completeness without discussion.

General: Heat in Blood ; Qi and Blood stagnation in PLB [Severe]; Neo-plastic process – mild. Lung: Separation of Yin and Yang, Damp Heat, Blood deficiency, Yin deficiency, Qi stagnation and Parenchymal damage. Liver: Engorged [Mild], Qi stagnation. Gallbladder: Damp Heat , Micro-

bleeding, Hardening of the Walls [*Leather quality*] and Diminished Function. Spleen-Stomach-Intestines: Spleen Qi deficiency, Stagnation in Small and Large Intestine, LI-SI: Impaired Function. Lower Burner: Blood and Qi Stagnation and Qi deficiency

Details of her depression are: overwhelming sadness, inadequacy, too fat, internalize on self [anger at self, all her fault], procrastination when depressed

Other complaints later revealed but not immediately relevant to the purpose of this paper were: Skin: Dry itchy skin [Pressure feels better so mostly at night]; Dry skin on face; Acne with pus especially before period; Nutrition: Low blood sugar [light headed, cannot think clearly, chest constricts if do not eat, feel these symptoms after two hours]. The more she eats and worse her diet the less symptoms; the healthier and less eats the worse the symptoms], If she eats too much she feels nauseated. GI System: Sensitive Stomach, moody eater in that what she likes one day she might not eat the next day, nauseated with low blood sugar, eat too much, just the Idea or odors of certain foods, `heavy foods' such as apple juice or orange juice, even water, BM one to two times per day. Energy: constantly tired, sleep at any time, no combination of hours helps, tired when awake- hard to get out of bed, always cold. Weight: lose weight when studying. stress sometimes causes weight gain, mostly on a plateau but gain when dieting and lose when not. Nails: soft, peel easily. Immune System: Sick often- q. 3-4 weeks; coughing, constricted chest, running nose, sore throat- went away, glands swell-closed but no mucous, no defense against whatever is around and harder time getting rid of. Lockjaw: TMJ for four months since wisdom teeth removed two months ago, grinds teeth. Urination: frequency [ten to fifteen times a day], nocturia two times a night. Bruise: easily and always, long time to clear up, arms and legs. Musculoskeletal: Sore muscles and joints, neck and back in knots, cramps in leg and feet, periodically hands swell and

palm of hand and between thumb and forefinger and joints ache, Ankles and knees and wrists pop; all worse in AM or PM when not active. Menstrual Cycle: regular, sensitive to other women's cycles. Periods short with excessive bleeding throughout, clots and dark, cramps sometimes very severe- before and one to two days after.

CONCLUSION

A twenty-two year old woman presented herself refusing to discuss her problems with a doctor but willing to have her pulse taken on the encouragement of her mother who was present throughout but would give no history.

Qualities on her pulse revealed her to be and feel exceedingly and resigned to being stuck in life [*Cotton [4+]* without the strength or will [Kidney Yang-Essence], direction [Liver Yang deficiency] or emotional stability [Heart Qi Agitation, blood deficiency and Phlegm Misting the Orifices] to move through this impasse.

Her reaction to this reading was a great sense of amazement and relief that she was known and understood in a way that she felt she could not communicate in words, that she was no longer alone with her inner torture and paralysis and could hope for a solution in a working relationship.

B. CASE TWO – OBFUSCATION

This 55 year old woman presented herself with a chief complaint of chronic hepatitis, hip pain and hypertension with the admonition that she would do nothing to change her lifestyle that included a fast-food diet high in trans-fats and over-over work.

A short unrevealing history from her primary therapist accompanied the patient. However, I is of no relevance to this presentation since the only reason for her referral was to treat the chronic hepatitis.

I took her pulse noted below with the issues important to our discussion again highlighted in bold.

Name: #18	**Gender:** F	**Age:** 55	**Wgt:** 198	**Occup:** Executive

Rhythm: Normal

Rate/Min: Begin: 70 **End:** 72 **W/Exertion:**
Other Rates During Exam: 84

First Impressions of Uniform Qualities Muffled (3); Tense; Rob. PND (3); Intensity Changing (2);
See "Comments" below

Depths
Above Qi Depth: Cotton (4)
Qi: Tense-Tight; Slippery
Blood: Heat; ~Slippery
Organ: Tense-Rob. PND (4); Slippery
O-B; O-O - Slippery
Wave: Hesitant

Left Side:	**Right Side:**
Slippery	Choppy; Tighter

Principal Positions

L: Distal Position	**R:**
Absent w/rare episodes of Thin; Tight qualities	Absent w/rare episodes of Thin; Tight qualities

L: Middle Position	**R:**
SPLIT Qi Depth Diminished Muffled (2+) ~Slippery Tense-Tight Rob. PND changing to Reduced PND ↕ Feeble	Qi Depth Diminished Muffled (2+) Tense ~Slippery Intensity Changing (3) Reduced PND ↕ Tense; Rob PND w/movement

L: Proximal Position	**R:**
Thin; Tight ↕ Tense; Rob. PND ↕ Feeble Intensity ▲ Slowly	Deep; Feeble Muffled (3) ↕ Thin; Tight ↕ Absent

Three Burners
Upper:
Middle:
Lower:

Complementary Positions

L: Neuro-psychological	**R:**
R. Vibration (4)	Doughy; Intensity Changing Slowly

L: Special Lung Position	**R:**
Muffled; Tense; Slippery; R. Vib.; Intensity Changing (2+)	Tense; Rob. PND (3+); ~Slippery; Rough **Pleura:**

Heart
Mitral Valve: Smooth Vibration; Slippery
Enlarged: --- **Large Vessel:** ---

L: Diaphragm	**R:**
Flat, Muffled; Inflated (1)	Inflated (2+); Intensity Changing slowly (3)

Liver
Engorged::
Distal: --- **Radial:** --- **Ulnar:** ---
Gall Bladder: Muffled (1); Tense; Slippery; Inflated

Spleen-Stomach
Esophagus: --- **Spleen:** P
Peritoneal Cavity/Pancreas:
Stom-Pyl. Exten: Muffled (2+); Thin; Tense; Choppy
↕
Duodenum: Absent

Large: Intestines	**Small:**
Tense; Rob. PND; R. Vib. Intensity Changing (3);	Feeble

L: Pelvis/Lower Body	**R:**
Muffled (3); Tense↔Tight; ~Choppy; Intensity Changing (3)	Deep; Muffled; Slippery; Tense ↔ Tight; Choppy; Feeble

Comments: 1. Pulse Rises and Falls in Intensity; Changing ↕w/movement in short time
2. **QUALITIES IN EACH POSITION CONSTANTLY CHANGING**

▲ = Change **(1 → 5) = low → high degree**

OBSERVATION

With little history and some blood chemistries I turned to study the pulse for some clues about this woman. I was immediately puzzled by two findings.

The first was the constant change of all the qualities as I accessed them. As an example, *Tight* became *Feeble* and then *Slippery* and suddenly *Choppy* all within a few seconds, and this took place randomly in all positions. How was I to interpret a pulse with this degree of constant instability of qualities? I pondered this for a long time.

The second finding involved the Left Middle Position where the one thing that remained stable was that the pulse was divided into a very *Thin* and *Tight* vessel laterally and a *Tense ,Robust Pounding* vessel medially.

This is known as the Split Pulse[x], first reported by Efrem Korngold L.Ac. about twelve years ago and since confirmed at least fifty times by a variety of practitioners. It is associated with a pre-occupation with death, either one's own or of someone important. Though the presence of a life threatening disease can be the issue, more often we have found a preoccupation with suicide to be the source.

The third finding is the *Cotton [4]*, a sign of resignation discussed in the context of the first case.

Other aspects of the pulse not relevant to this paper are:
I. General: A. Qi-Yang deficiency-(Heart Qi [4], Lung Qi [5], Liver [3], Spleen-Stomach-Intestines [3], Kidneys [3-4], Pelvic Lower Body Position); B. Blood 1. Stagnation-A. Tissues (Lower Burner [3]; B. Blood Damp Heat [3]; 2. Deficiency-Kidneys [3]; C. Elevated Blood Sugar [*Qi Depth Slippery* and *Rate Normal* initially before entire Left Side became *Slippery*]; C. Yin 1. Excess Damp Heat [*Slippery* [Blood, Left Side Position, Special Lung Position, Spleen, GB, Pelvic Lower Body Position 2. Deficiency- Every Principle Position [4] except Spleen Position; Damp Heat- Tissues from Excess (First Impression of Uniform Qualities [*Robust Pounding*- 3], Special Lung Position [3+]), O-B &O-O= *Slippery*; Neo-plastic Activity- *Muffled* quality overall [First Impressions of Uniform Qualities–[3]; Toxicity: First Impressions of Uniform Qualities, Right Side-*Choppy.*

DISCUSSION

Upon some considerable puzzled reflection into the wee hours of the night It suddenly occurred to me that perhaps this person did not want me to `read' her [the ever changing qualities] and possibly that what she did not want me to know was that she was contemplating suicide [Split Pulse]. One has to contemplate that this person is undergoing an emotional crisis that she not willing to share or resolve, experiencing herself at an impasse [*Cotton [4]*

In the subsequent meeting she was curious about my findings and I told her that `the pulse tells me' that you are concealing something and that perhaps it has something to do with contemplating taking your life.

She then revealed to me that her disabled elderly parents had come to live with her and seeing so infirm in their old age, she realized that she did not want to grow old that way. Reviewing this and the emptiness of her current life, She was thinking that perhaps she should end it before old age began. She did not want anyone close to her to know these thoughts. As part of close-knit group of well-meaning women, they would actively interfere with her vague plans to end her life, an interference with which she was not ready to cope.

With further discussion she agreed to speak with some of these women, and though at this point still seems to be trying to die young through her life-threatening lifestyle, has abandoned her suicidal ruminations and found in various ways some joy in life.

SUMMARY

The patients presented in this paper, two of hundreds like them, represent the capacity of CCPD to reveal the individual in great detail as distinct from their condition or disease and in these instances make available life-giving and life-saving intervention. In serving the `individual' in this manner we are realizing Chinese medicine in it most profound and sophisticated role as touching the essence of people and protecting that essence from self-destruction.

Ni, Maoshing. The Yellow Emperor's Classic of Medicine. A New Translation of the Neijing Suwen with Commentary, Boston, MA: Shambala, 1995

Scheid 2007, p 394 (regarding Dr. Shen's education)

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[i] Stern, Elaine, L.Ac.; Personal Communication; January 2008

> "One of the most valuable things I learned from studying with you and with Dr. Shen, was that the pulse could be used as a place to pay attention to the patient on a different level, without talk, and with deep attentiveness to their rhythms and tone. I always liked the idea that both you and Dr. Shen used the pulse this way and then made an interpretation that was of value, not just to the "diagnosis" but to the patient, directly, as well.
>
> In this way, as you taught me, interpretation of the pulse, when discussed with the patient, is a vehicle for communication and for therapy. Many times, in both his practice and yours, I saw the pulse interpretation IN AND OF ITSELF help succor and transform a patient's problem and contribute immensely to his or her progress. Whatever the interpretation added to your diagnosis, your understanding of prognosis, your use of particular points or herbs, the contact, attention and the interpretation to the patient was its own treatment as well.
>
> I took this away with me and if anything, this is the part I have kept and tried to cultivate in my practice. It has been very rewarding. I have found the pulse a wonderful venue to meditate on the patient, a jumping off point from which to discuss emotional, psychological and lifestyle issues, to set the stage for the treatment we embark on and occasionally to surprise (the wow! factor) the patient with a physical finding which helped to gain their trust. I love pulse diagnosis for this is one of the most creative aspects of my practice. I have even "found" some pulse patterns of my own which I find useful models -- whether they are "real" or not."

[ii] Hammer, Leon I., M.D.; Contemporary Pulse diagnosis: Introduction to An Evolving Method for Learning an Ancient Art-Part I; American Journal of Acupuncture, Vol. 21, No. 2, 1993
[iii] Hammer, Leon I. M.D.; Chinese Pulse Diagnosis: A Contemporary Approach [Revised]; Eastland Press, 2005; Pg. 236-238; 470
[iv] Hammer, Leon I. M.D. Dragon Rises Red Bird Flies [Revised]; Eastland Press, 2005; Chapter Eight
[v] Ibid; Chapter Nine
[vi] Hammer, Leon I. M.D.; Chinese Pulse Diagnosis: A Contemporary Approach [Revised]; Eastland Press, 2005; Chapter Six, Pgs 113-124 [especially Pg. 115]
[vii] Ibid Chapter 12, Pgs 393-419
[viii] Ibid Chapter 12 Pg. 401
[ix] Hammer, Leon I.. M.D.: Awareness in Chinese Medicine; The American Acupuncturist , Fall 2007 Volume 41, Pg. 10
[x] Hammer, Leon I. M.D.; Chinese Pulse Diagnosis: A Contemporary Approach [Revised]; Eastland Press, 2005; Pg 380