

**Physics of the Five Elements**  
**(Interpretation of phenomenon of Chinese medicine)**

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This article is devoted to the base of traditional Chinese philosophy from point of view of special model of the physical world. The Author hopes reader will find sufficient patient to realize the concept and ask questions at bottom.

I would like to start the article from words of famous German scientist, one of the founders of the quantum mechanics, Werner Heisenberg:

“Quantum mechanics describes a world of Heraclitean Becoming rather than a world of Aristotelian Being. Because the Theory of Relativity considers "mass" and "energy" to be essentially identical, it is possible to say that all elementary particles are energy and that energy is the primary substance of the world. If the Heraclitean element of "fire" is interpreted as "energy," it is easy to see that the views of modern physics are very close to those of Heraclitus. "Energy," which can be translated into matter or heat or light, is that which moves and thus it is the primary cause of all change. The strife between opposites which forms the basis of the Heraclitean view of the universe can be seen in the strife which exists between two different forms of energy”.

Modern physics has a lot of different theories describing causality principle of the World. Also in this article it is proposed the Ether Model (EM) of Universe. The EM is very similar to the World that Werner Heisenberg had described above.

It is suggested by EM that Universe is presented as infinitely large space filled with numerous infinitesimal particles. These particles are very small, indivisible and moving at a very high (constant) speed.

Huge quantity of such objects forms principally non-stopping streams. Thus, streams of Ether have characteristics of ideal gas.

Contrary flows of Ether in the Space build cavities with a very high pressure. Transformations of forward movement into rotary motion are in process here. Excess of ether particles organizes vortex consolidations in the space. Stable vortexes became storages of particles for some time. Depending on dynamic changes of ether's pressure (inflow and outflow balance in our sector of space) vortex consolidations have definite term of existence. All period of lifetime vortexes have interconnection by means of ether flows and in accordance with their orientations in space.

Thus, it is suggested that visible matter world is vortex consolidations of ether. These consolidations form complicated stable complexes such as elementary particles, atoms and molecules.

Further, the term “ether” will be changed to “energy”. It is the same at level of atoms and molecules and lies online of modern scientific conception regarding term of “energy” and “matter”.

Decay and formation of matter is depending only from energy density in environment. When there is increase of energy density (additional portion of energy came into the volume of space), there are more quantity of vortex consolidations appear to absorb the excess of energy. When there is decrease of energy density, vortexes are losing energy gradually to compensate difference between inner and outer parameters of energy balance.

At life scale of the Earth, changes of energy density in space of the Solar system have inessential character. So, we have illusion regarding constancy of our matter world. Really, any point in the Universe endures changes of energy density many times during long period of space existence. Energy ebbs and flows, matter world appears and vanishes. There is cyclic process without beginning and ending.

The nature possesses properties of self-organization. During long time ebbs and flows became very regular (it indicates at dynamic balance). Physicists and chemists had

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revealed fact of self-oscillations of gas density and speed of chemical reactions yet at the beginning of the 20-th century.

If we advert to oriental philosophy, it is easy to discover that besides wordy description of Element's peculiarities, there is classification of Elements as different grade of energy. The famous example is order of the 8 trigrams well known as Ba-Gua.

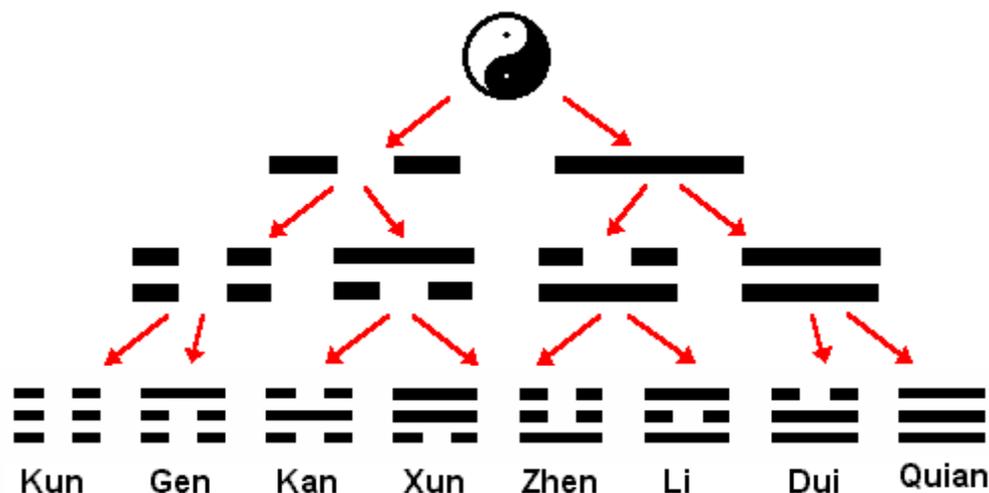


Fig.1

Fig.1 shows the division of objects as a different degree of energy density. The first step is division of the whole object. It forms the first level of energy hierarchy - division on Yin and Yang. It is supposed Yin object has high density of energy (fullness), but Yang object has low density (emptiness). It is clear that division is made from average energy density of the whole object. Object of any hierarchy level also can be divided into next hierarchy step of Ying and Yang and this process is without limitation inside the object (so it is outwards too). Sum of energies of all objects encapsulated into the whole object presents full energy of this object.

Thus, it became understandable interrelation between Yin and Yang: excess of Yang objects at lower level of hierarchy speaks about reduction of objects with Yin condition. As a result, changes of average density of the whole object arise, and object goes into Yang condition for higher level of hierarchy. The energy flows out of the object and is eradiated into environment. And vice versa, if Ying objects predominate, the whole object moves into Yin condition, average energy density increases and object absorbs energy from environment.

Actually trigrams are designations of some physical entity of energy in a binary format and the scale of energy can be presented as follows:

<b>Trigrams</b>								
<b>Binary figures</b>	000	001	010	011	100	101	110	111
<b>Decimal figures</b>	0	1	2	3	4	5	6	7

Fig.2

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It is supposed that third level of hierarchy of dividing of objects into Yin and Yang defines the existence of eight objects of different energy density.

There is Fu Xi's Early Heaven's order in traditional Chinese philosophy:

Trigrams								
	Kun	Gen	Kan	Xun	Zhen	Li	Dui	Qian
	Soil	Hill	Water	Tree	Thunder	Fire	Lake	Heavens
Binary figures	000	001	010	011	100	101	110	111
Decimal figures	0	1	2	3	4	5	6	7

Fig.3

Where:

0. Kun – Ultimate Soil – Ultimate Yin;
1. Gen – Soil;
2. Kan – Water;
3. Xun – Tree;
4. Thunder – Fire Minister;
5. Li – Fire;
6. Dui – Metal;
7. Qian – Ultimate Metal – Ultimate Yang.

Thus, it is possible to make conclusion that order of trigrams reflects sequence of phases during energy transformations of the object when it is going from excess of energy to lack of energy. Every phase has definite peculiarities and character and it had received name as an Element.

If the object has cyclic changes of energy density, phases are placed at function of Sine as follows:

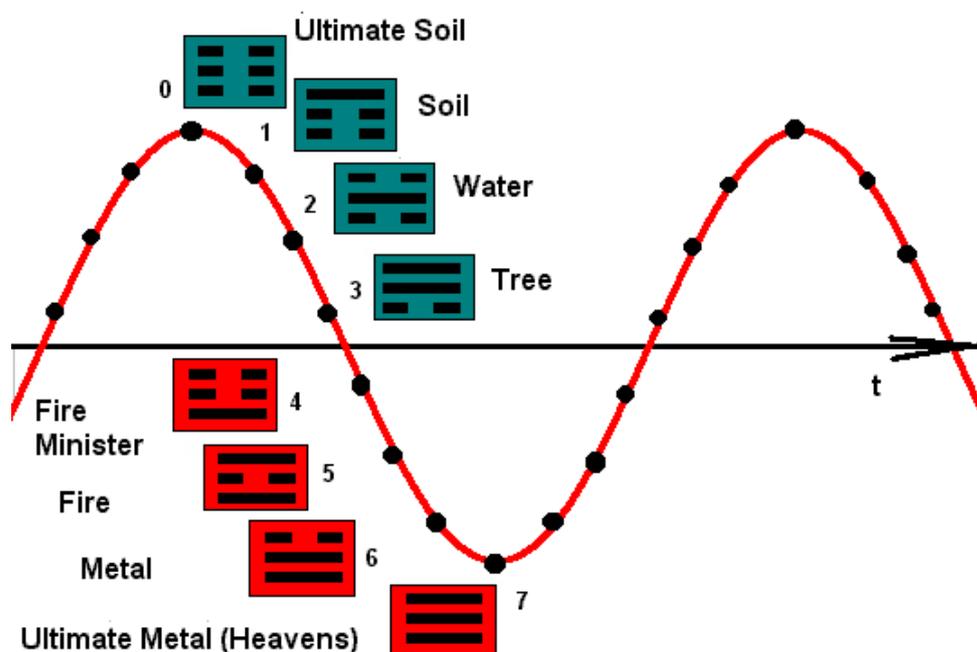


Fig.4

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Of course, if object has energy density more than average mean, it will be placed above the horizon line (t). Objects above the line “t” in traditional Chinese medicine are named as stout organs. Vice versa, objects below the line “t” are hollow organs.

Thus, we have interrelations between energy phases and systems of organisms (organs) as follows:

Number of trigram	Element	Organ – Meridian
1	Ultimate Soil-Yin maximum	Front-Middle Meridian- Conception Vessel, CV
2	Yin of Soil	Spleen, SP
3	Yin of Water	Kidneys, KI
4	Yin of Tree	Liver, LR
5	Yang of Fire Minister	Triple Burner, TE
6	Yang of Fire	Small Intestine, SI
7	Yang of Metal	Large Intestine, LI
8	Heavens – Yang Maximum	Back-Middle meridian- Governing Vessel, GV

Fig.5

But literature of Chinese Medicine has one more interrelation:

Names of Meridians	Meridians segments
LU (Lungs) – SP (Spleen)	Tai Yin (the Great Yin)
LI (Large Intestine) – ST (Stomach)	Yang Ming (the Clear Yang)
HT (Heart) – KI (Kidneys)	Shao Yin (the Little Yin)
SI (Small Intestine) – UB (Urinary Bladder)	Tai Yang (the Great Yang)
PC (Pericardium) – LR (Liver)	Jue Yin (Yin inside)
TE (Triple Burner) – GB (Gall Bladder)	Shao Yang (the Little Yang)

Fig.6

These facts allow building a system of interrelations between phases and organs as follows:

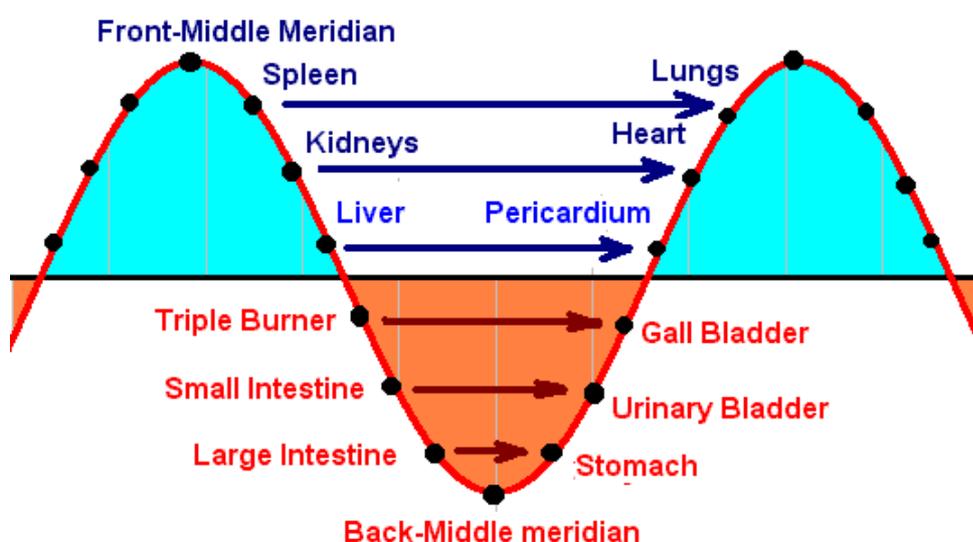


Fig.7

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Disposition of the organs on the Sine is system of coordinates. At every moment all organs during functioning must change their own positions synchronically.

Any of the organs must go through all phases of accumulation and eradication of energy. In accordance with current phase, organs play the role of an appropriate Element in mutual action of each with another. There are 14 acting organs (systems). Each organ has own like-Sine process of activity. Organs of the same Element should have phases as different as 180 degree. Thus Yin and Yang of one Element work.

If the whole energy is divided into 8 segments (like in Ba-Gua in Traditional Chinese Medicine), 7 Elements appear. High grade of quantization causes appearance additional quantity of Elements. One Element is a pair of polar objects on the Sine.

To save energy integrity, man's organism must have synchronic changes of Yin-Yang organs and synchronic changes between all pairs of Yin-Yang. In case of 7 Elements the scheme of interaction seems as follows:

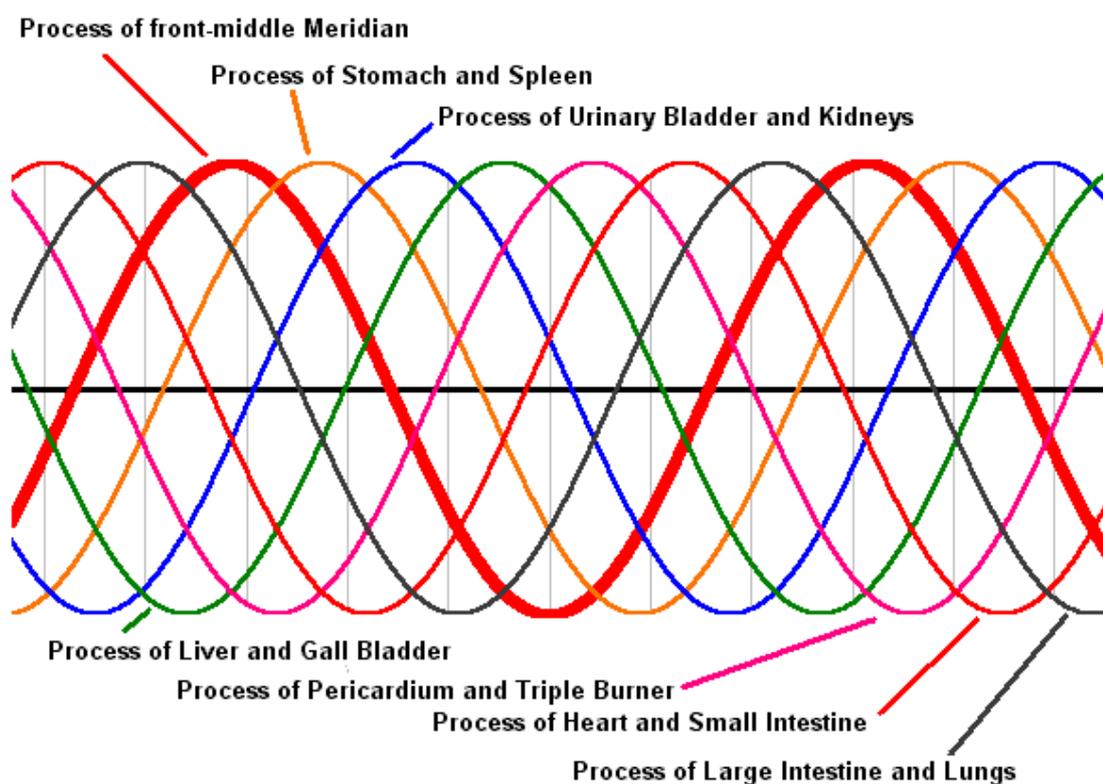


Fig.8

The whole energy of the object is the same at any moment and depends of sum of energies of 14 encapsulated objects at definite moment. If we take into account gradation of energy density from "0" to "7" as it was made by Ba-Gua, the current sum of energies is consists of two variants:

$$0+2+2+4+4+6+6=24, \text{ (energies of even positions) and}$$

$$1+1+3+3+5+5+7=25. \text{ (energies of odd positions).}$$

Difference between two variants is dynamic difference between Yin and Yang and it will be presented at any time and at any level of hierarchy.

When the whole cycle of circulation is divided into 7 processes, 14 unique combinations of energy flow are formed. These combinations of energy flows are vertical lines in Fig.8 and can be named as channels of energies. Even and odd figures indicate Yin and Yang channels correspondingly.

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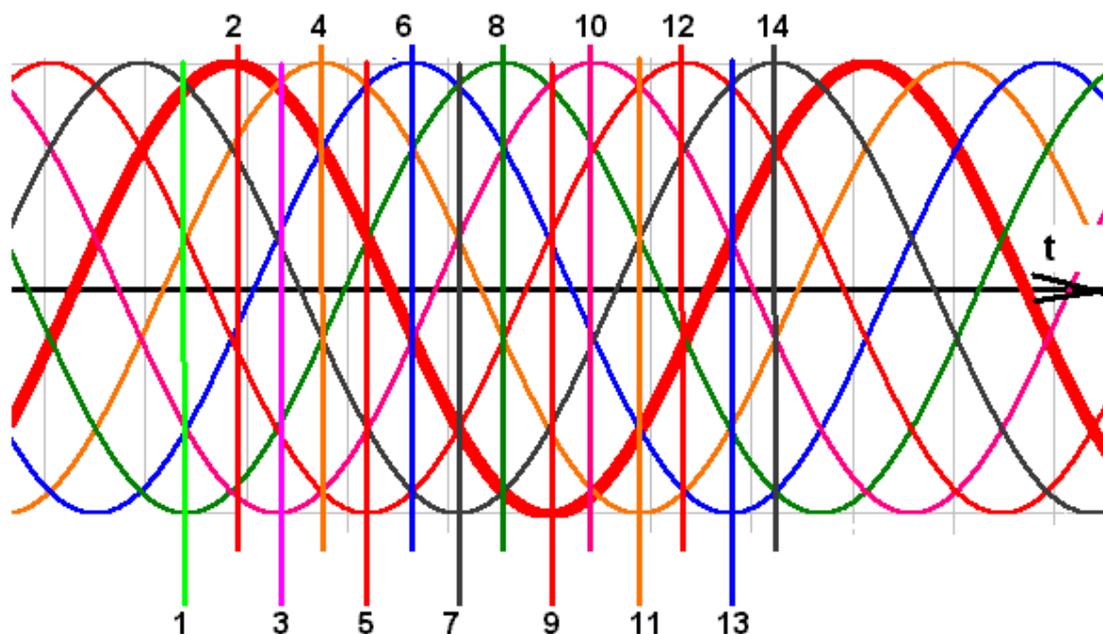


Fig.9

Cross flow of energies from one process to another takes place at junctions of a Sine's intersections, where phase density of energies equal. One of the coupled processes absorbs energy and proceeds to more stout condition, but opposite process radiate energy and moves in direction of empty condition.

If we take into account time flow, lines from the left to the right show processes of energy consumption, but downing lines reflect waste of energy. It means that first processes are Ying processes, but and second ones are Yang. When processes have reached limit of waste or saturation of energy, their movements are changing to inverse.

Let's examine projections of our 7 processes to well known rhythm of daily circulation of energy:

NN	Name of Qi	Time of maximum Qi
1.	Yang of Tree, Gall Bladder	00.00
2.	Yin of Tree, Liver	02.00
3.	Yin of Metal, Lungs	04.00
4.	Yang of Metal, Large Intestine	06.00
5.	Yang of Soil, Stomach	08.00
6.	Yin of Soil, Spleen	10.00
7.	Yin of Fire, Heart	12.00
8.	Yang of Fire, Small Intestine	14.00
9.	Yang of Water, Urinary Bladder	16.00
10.	Yin of Water, Kidneys	18.00
11.	Yin of Fire Minister, Pericardium	20.00
12.	Yang of Fire Minister, Triple Burner	22.00

Fig.10

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The most essential factors of interactions between processes are as follows:

1. Symmetry of Yang and Yin of Qi for the same Element ;
2. Order of sequence of Qi maximums as it is specified at Fig.10.

Taking into account the first factor, it is possible to come to conclusion that period of Qi cycle of Elements is 4 hours (doubled term between Yang and Yin maximums)

The second factor gives beginning of the day and order of Elements. Results are in the table below:

NN	Name of Qi	Time of Qi maximums
1.	<b>Yang of Tree, Gall Bladder</b>	<b>00.00</b>
2.	<b>Yin of Tree, Liver</b>	<b>02.00</b>
3.	<b>Yin of Metal, Lungs</b>	<b>04.51</b>
4.	<b>Yang of Metal, Large Intestine</b>	<b>06.51</b>
5.	<b>Yang of Soil, Stomach</b>	<b>07.26</b>
6.	<b>Yin of Soil, Spleen</b>	<b>09.26</b>
7.	<b>Yin of Fire, Heart</b>	<b>12.35</b>
8.	<b>Yang of Fire, Small Intestine</b>	<b>14.35</b>
9.	<b>Yang of Water, Urinary Bladder</b>	<b>15.44</b>
10.	<b>Yin of Water, Kidneys</b>	<b>17.44</b>
11.	<b>Yin of Fire Minister, Pericardium</b>	<b>20.18</b>
12.	<b>Yang of Fire Minister, Triple Burner</b>	<b>22.18</b>

Fig.11

Highest possible deviation of figures from ideal daily circulation is 3,5%.

As far as period of one Qi circulation is 4 hours, number of circulations for one day is 6 per a day. It means that 14 channels appear six times and such order repeats every day exactly.

Thus, the day consists of  $6 \times 14 = 84$  periods. One period is equal to one phase change inside the Qi (process). The term of one phase change is  $4 \text{ hours} / 14 = 17.14$  minutes.

It is interesting interrelations of 6 Qi with the seventh process (see Fig.12).

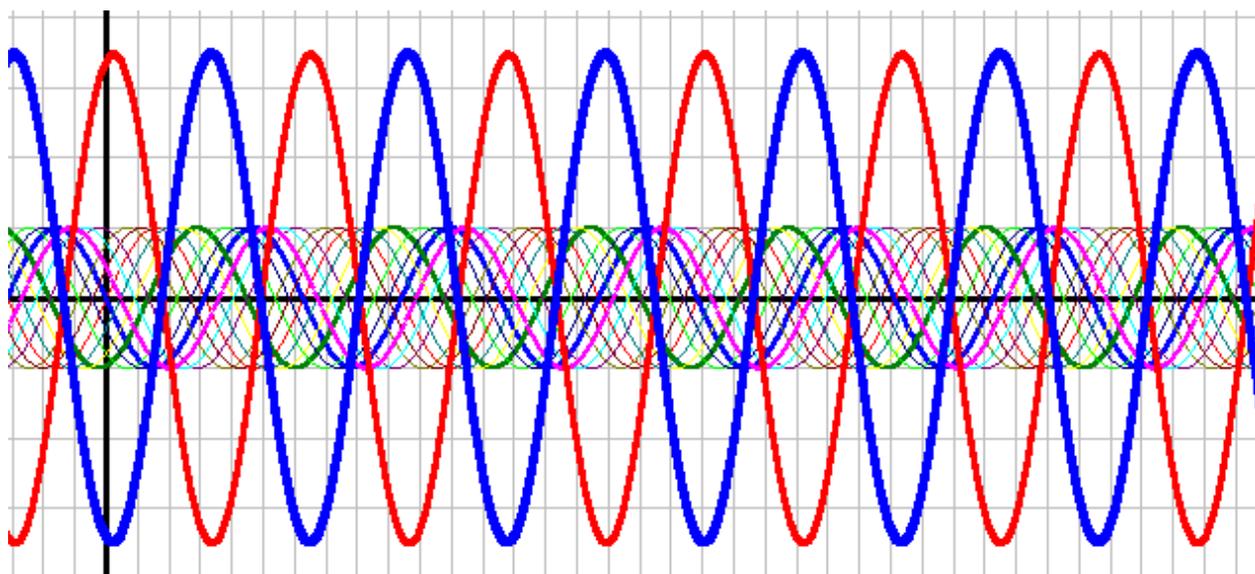


Fig.12

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If we suppose the energies of six Qi are equal, the sum of their energies is turned out as diagram of red Sine at Fig. 11. But energy of the whole object (organism of man) must save stability. Hence, red Sine must be balanced by blue Sine. This blue Sine presents seventh process (coupled objects of Middle-front and Middle-back meridians). Amplitude of this seventh process is almost three times high then ordinary Qi. Possibly, that is why, in traditional Chinese Medicine Middle-front and Middle-back meridians are named as oceans of energy. Practically detection of this fact leads us to conclusion that every hour shift of activity should take place. There is active energy overflow between organs and Middle-front and Middle-back meridians in one hour and in the next our it is energy overflow between organs only (Middle-front and Middle-back meridians are in phase of saturation)

But interaction of the seven processes is only one side of the object – inner one. Every of seventh processes have connection with external processes that are similar to parameters of inner processes (current energy density, for example).

**Outer self-synchronizing process (in black colour)**

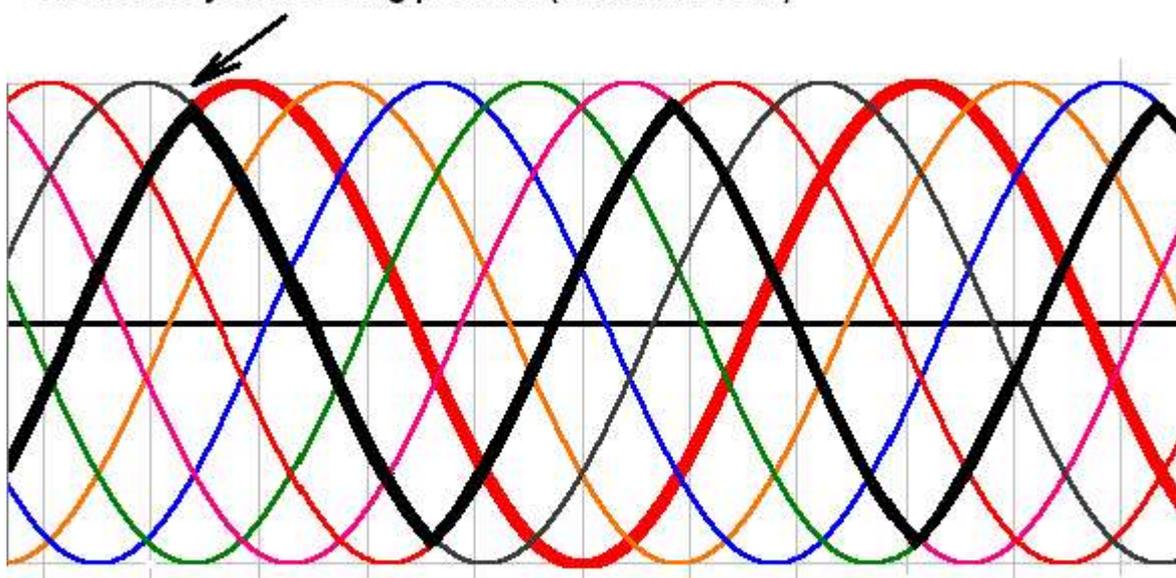


Fig.13

Synchronization of outer and inner processes takes place owing to order of energy activity. At every moment there are only 6 inner objects are in active and 2 are not take part in interconnection because of their phase states. The velocity of parameter's changes for such "laid-down" objects is very low.

During one cycle of full circulation every of 14 objects goes through all phases including state of "laid-downing".

Inner and outer processes have reactive interconnection (as capacitor and inductance) i.e. at very small time period their phase's states are opposite as Yin and Yang. Only under such circumstances energy exchange is possible between inner and outer processes. When outer and inner processes are in interaction, it is impossible to distinguish them at the border between inner and outer space.

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To some degree outer process possesses with unlimited energy, and energy exchange aims to condition of outer phase.

That is why balance between outer self-synchronized processes and inner processes is very important and can serve as index of inner condition.

To obtain full description of six phases of objects (another two are in hibernation), it is enough of 5 coupled processes:

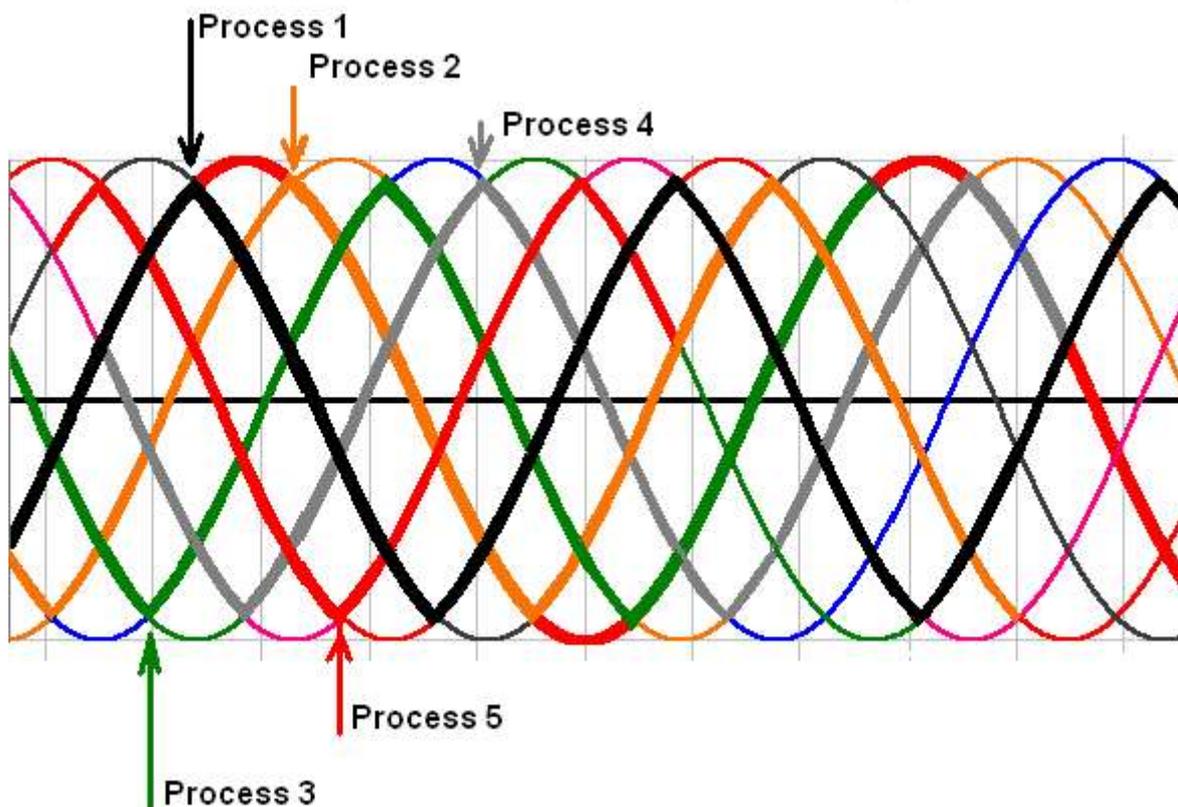


Fig.14

Thus, current condition is a result of interaction of 7 pairs inner and 5 pairs of outer processes

As inner processes were named as Qi, outer processes are named as Elements. Interrelation between Elements and organs are as follows:

Element Fire – Heart, Small Intestine, Pericardium, Triple Burner;  
 Element Soil - Spleen, Stomach;  
 Element Metal – Lungs, Large Intestine;  
 Element Water – Kidneys; Urinary Bladder;  
 Element Tree – Liver, Gall Bladder.

Interaction of inner and outer processes is cyclic. Peculiarities of interaction repeat in 5 cycles of inner processes and in 7 cycles of outer processes, i.e. duration of outer process is  $5/7$  of inner cycle.

Because inner cycle has period of 14 phase's changes, full unique cycle of energy interaction consists of  $14 \times 5 = 70$  phase's changes (20 hours). If we will take into account the fact that every part of day has its own energy quality, the next unique cycle will take 5 days. During this 5 days cycle of 70 phase's changes will be repeated 6 times.

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To build order of channels for outer processes, we use order of mutual birth in accordance with Wu-Qing Law as follows:

**Yang of Tree → Yin of Fire → Yang of Soil → Yin of Metal  
 → Yang of Water → Yin of Tree → Yang of Fire  
 → Yin of Soil → Yang of Metal → Yin of Water,**

Graphically it seems as follows:

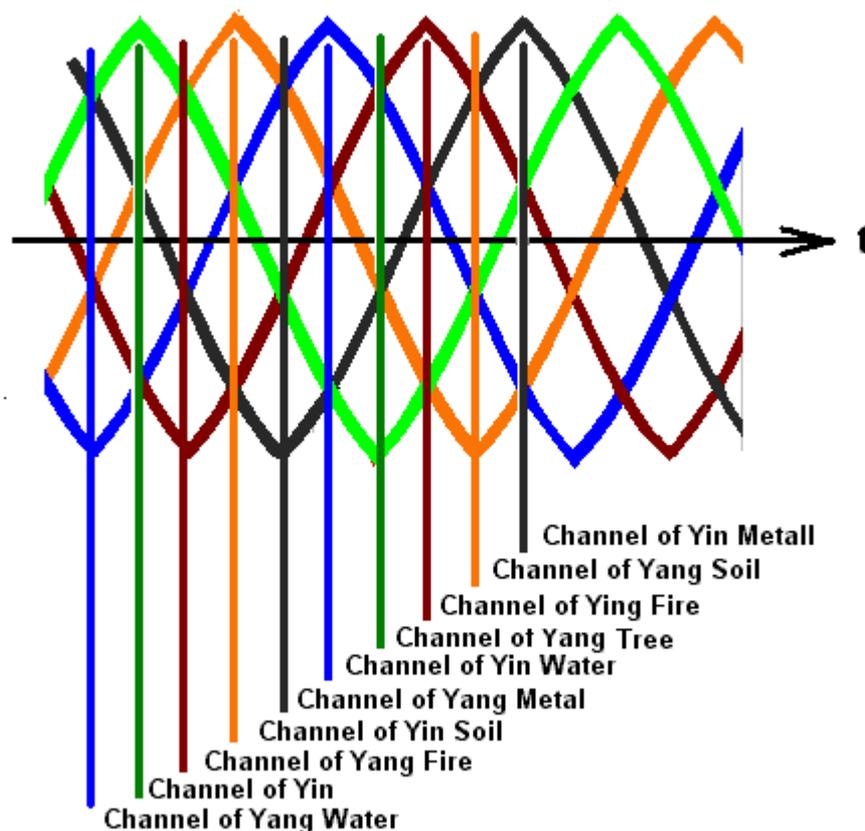


Fig.15

As it was marked with inner processes, lines from the left to the right show processes of energy consumption, but downing lines reflect waste of energy. It means that first processes are Ying processes, but and second ones are Yang. When processes have reached limit of waste or saturation of energy, their movements are changing to inverse.

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Thus, all interactions are describing with only 5 pairs of Qi overflows. For example:



Yin channel of Tree:

- three lines upstairs - Water (blue), Soil (yellow), Tree (green) – are segments of absorbing energy;

- three lines downstairs - Fire(dark red), Metal (gray), Tree (green) –

Yang channel of Tree has the same structure as Yin one, but functionality of segments changes to opposite:

Fig.16

Junctions of crossing lines are models of area where energy overflows from one Element to another

For ideal case, volumes of energies in the channel should be submitted to the Sine-like distribution:

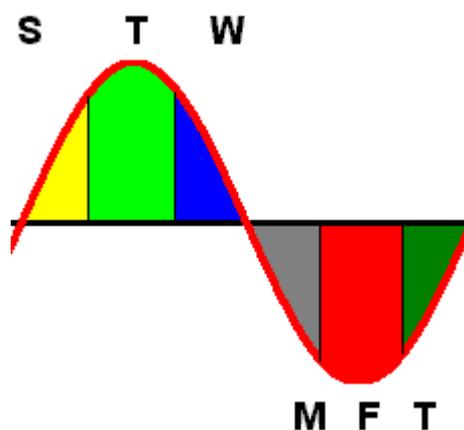


Fig.17

Upper part of the Sine consists of Yang energies for Yang channel and Yin energies for Yin channel and vice versa for lower part of the Sine. Such order of energies distribution is predetermined by Wu-Qing Law and corresponds to FIMESO order. FIMESO order reflects functional relations between Elements (Friend, I am, Mother, Enemy, Son, Fire Minister – is inversion of “I am”). Degree of conformity of Elements to the Sine distribution is main index of balanced condition of an appropriate channel. Otherwise functioning of a channel causes energy disorder. Not synchronized energy flow leads to loss.

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Here is the table of all channels:

N N	Name of Channel	Yang Elements (radiating energy)	Yin Elements (absorbing energy)	FIMESO order
1	Yang of Tree	Soil Tree Water	Metal Fire Tree Minister	<b>S T W</b> 
2	Yin of Tree	Metal Fire Tree Minister	Soil Tree Water	<b>M F T</b> 
3	Yang of Fire	Metal Fire Tree	Water Soil Fire Minister	<b>M F T</b> 
4	Yin of Fire	Water Soil Fire Minister	Metal Fire Tree	<b>W S F</b> 
5	Yang of Soil	Water Soil Fire	Tree Metal Soil Minister	<b>W S F</b> 
6	Yin of Soil	Tree Metal Soil Minister	Water Soil Fire	<b>T M S</b> 
7	Yang of Metal	Tree Metal Soil	Fire Water Metal Minister	<b>T M S</b> 
8	Yin of Metal	Fire Water Metal Minister	Tree Metal Soil	<b>F W M</b> 
9	Yang of Water	Fire Water Metal	Soil Tree Water Minister	<b>F W M</b> 
10	Yin Water	Soil Tree Water Minister	Fire Water Metal	<b>S T W</b> 

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### **The Conclusion**

A few problems of new physic were analyzed in this article.

The grain of all above written can be expressed only by one sentence:

Any object (so living organism) exists only due to a principle of synchronization of all inner processes.

Best regards, the Author.

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