

# FUXI'S AND LEIBNIZ'S *I CHING* PUZZLE

Happy Fourth!

by Pierre Beaudry , 7/4/2021

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## FOREWORD

What are we as Americans and from whence do we come? The establishment of the United States came about from a fundamental idea that applied to all of mankind. Such an idea is of the same nature and magnitude as the idea that Fuxi discovered and which Leibniz rediscovered on the subject of the {I Ching} puzzle. Thus, it is not surprising that Leibniz's concept of the {pursuit of happiness} is one of the key tenets of the {American Declaration of Independence}.

## INTRODUCTION

4,600 years ago, that is, 2,300 years before Plato, the founder of Chinese civilization, Fuxi (Fohi), made a discovery of principle on the subject of change and reciprocity, published in the {I Ching} ({The Book of Changes}), which was meant to accomplish precisely what it said; that is, to cause a process of transformation inside the minds of its readers, simultaneously, by means of the principle of reciprocity. Today, that Chinese method of knowledge is being applied to digital computer systems all over the world, and yet hardly anyone knows about the significance of the discovery. The {I Ching} is not a mathematical scheme, nor is it a mysterious divination method of manipulating people into blindly believing in the stars; it is a revolutionary transformative idea whose universal significance must now become recognized and understood by everyone around the world.

Three hundred years ago, a rediscovery of that same original Chinese discovery was made by Gottfried Leibniz, who made it public for the Western World to use and to apply to world politics, and yet, again, the discovery remained unacknowledged. The question is: How is it possible for such a genuine revolutionary idea to remain unrecognized by so many people, for such a long

period of time, and yet be in use by so many people around the world today without acknowledging it?

Today, we have the opportunity to answer that question and restore to its rightful Chinese author such a momentous discovery of principle which will continue to be used worldwide and for millennia to come, but from the vantage point of understanding its beneficial effect for all of mankind.

This report is written in the hope that such a discovery will help resolve the present ideological conflict between East and West, especially between the United States and China, and establish the {I Ching} principle of reciprocity as a crucial missing link for a New Peace of Westphalia among all peoples of the world.

### **RECIPROCITY: THE DISCOVERY OF FUXI'S PRINCIPLE**

Why is the discovery of the principle of reciprocity necessary for the survival of mankind at this point in time? Helga Zepp-LaRouche gave the answer to that question when she referred to Nicholas of Cusa's discovery of the method to define what the necessary next human invention must be. She said: "Now, obviously, Nicholas of Cusa could not know the specifics of it, but the method of defining the necessary next discovery by each individual, recapitulates the entire evolution of the universe up to that point, and from that standpoint, you can then determine what the next necessary step will be." [1]

What does that mean and what does that imply for every human being? What this means is that human history has come to a point in time when the old forms of governing have become obsolete and that new forms of government must replace the old ones. This implies that every human being has the ability to accede to such a change, because increasing numbers of people are capable of "communicating and receiving intense and impassioned conceptions respecting man and nature," as Percy Bysshe Shelley recognized in his {In Defense of Poetry}.

Therefore, the time has now come for the next discovery for mankind to be made in the spirit of change that Fuxi's puzzle of the {reciprocity of change} represents and from the vantage point of Lyndon LaRouche's scientific method.



As Helga said: “This concept of the {coincidentia oppositorum}, the {coincidence of opposites}, this is very close to the Chinese thinking of establishing, or trying to develop a harmony among people, among individuals, among nations, and it is what Xi Jinping calls the ‘shared community of the joint future of mankind.’” [2]

What is important to grasp in this process of transformation is the discovery of the same principle which Leibniz discusses in his book: {DISCOURS SUR LA THEOLOGIE NATURELLE DES CHINOIS} (Discourse on the Natural Theology of the Chinese). [3] In this book, Leibniz emphasizes the combinatory, periodical, and reciprocal ordering of the two elementary characters 0 and 1 by Fuxi, founder of Chinese culture and philosophy, who expressed such connectivity through the {coincidence of opposites} as defining the creative process.

**Fuxi (伏羲).** An ancient painting of Fuxi (right) and Nüwa (left) joined at the hip, which was unearthed in the Astana Cemetery of Xinjiang in China. Note how the coincidence of opposites becomes resolved. Wikipedia

In fact, this elementary Chinese characteristics of a broken line and of a whole line, – – and —, are actual traces of a universally demonstrable human modular memory function that represents such a Shelley moment of change. It may have been used at several forgotten moments of ancient times, but the last one which is remembered is the ordering of the seven days of the week according to the seven visible bodies of our Solar System (Sun-day, Moon-day, Mars-day,

Mercury-day, Jupiter-day, Venus-day, Saturn-day). Although such an ancient calendar ordering had been used by the three great civilizations of ancient times, the Chinese, the Indian, and the Egyptian, the origin of the discovery remains nebulous and its author is still unknown to this day. Fortunately, the ancient *I Ching* hexagrams have not lost their geometrical and epistemological significance during the course of the millennia. Leibniz made the crucial point on this matter:

“It is indeed apparent that if our Europeans were sufficiently well informed of Chinese literature, then, with the assistance of logic, of critical thinking, mathematics, and of our manner of expressing ourselves, which is better defined than their own, we could uncover in Chinese writings of very ancient times, many things unknown to modern Chinese and even to the classical scholars of the past, no matter how classically trained they may have been. This is how Father Joachim Bouvet and I have discovered the most obvious truthful meaning about the literal significance of the characters invented by the ancient founder of the Chinese empire, Fohi (Fuxi), which consists merely of combinations of broken and unbroken lines, and which are considered the most ancient writing of China, and their simplest ones.

“There are sixty four (64) figures included in the book known as {I Ching}; that is to say, {The Book of Changes}.

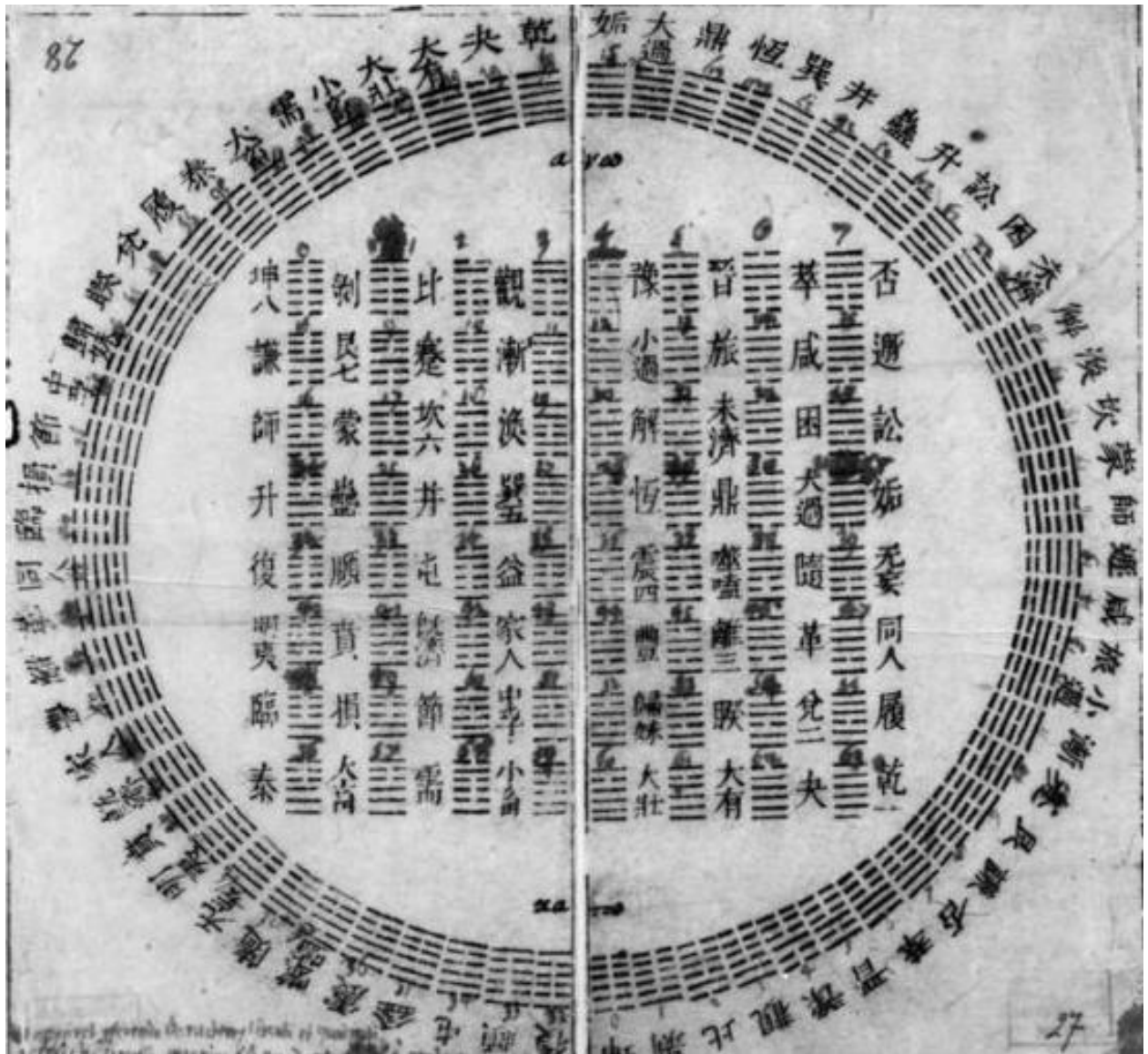
“Several centuries after Fohi (Fuxi), Emperor Ven Vam and his son, Cheu Cum, and more than five hundred years later the famous Confucius, have all attempted to find in them some philosophical mysteries. Others have even attempted to extract from them some geomancy and other similar vain concoctions. In reality, the 64 hexagrams are nothing but an exercise in binary arithmetic, which this great legislator (Fuxi) discovered, and which I have also discovered several thousand years later.

“In that arithmetic, there are only two notes, zero 0 and one 1, from which all the numbers can be generated; and when I told Father Bouvet about it, he immediately realized that they corresponded precisely to the Fuxi characters. By making the broken line – – correspond to 0 or zero, and the unbroken line — correspond to unity or 1, this arithmetic gives you the simplest way to produce variations, since you only have two variables.

“This is how Fohi (Fuxi) was inspired to discover the science of combinations on the subject of which I wrote a short dissertation in my youth, and which was later reprinted without my consent. However, since this arithmetic had been completely lost, the later Chinese generations did not pay any attention to the knowledge they had lost. And, they transformed the Fohi (Fuxi) characters into God knows what symbols and hieroglyphics, which became meaningless, like what Father Kircher said about the writings of the Egyptian obelisks that he had no understanding of. And, this goes to show that the ancient Chinese have by far exceeded the modern Chinese, not only in piety (which leads to the most perfect morality) but also in science.”[4]

These numbers, as Leibniz stated, are a transformative metaphor of the creative process of change itself; they reflect a principle of transformation which requires their simultaneous application in order to be understood; they are a performative form of mental exercise which does what it says; that is, it accomplishes the harmonically multiply-connected changes that it enunciates. Here is how Leibniz describes this self-generating “natural theology” as an analogue to the Christian view of Creativity:

“And thus, as far as I understand, I think the substance of the ancient theology of the Chinese is intact and, purged of additional errors, can be harnessed to the great truths of the Christian religion. Fohi (Fuxi), the most ancient prince and philosopher of the Chinese, had understood the origin of things from unity and nothing, i.e., his mysterious figures reveal something of an analogy to Creation, containing the binary arithmetic (and yet hinting at greater things) that I rediscovered after so many thousands of years, where all numbers are written by only two notations, 0 and 1.” [5]



Original copy of the 64 {I Ching} hexagrams (from 0 to 63) sent to Leibniz from China by Father Joachim Bouvet. The hand written western numbers are from the pen of Leibniz.

	0	1	10	100	1000	10000	etc.
signify	0	1	2	4	8	16	etc.

The numbers are expressed as follows:

		Figures of Fohi	
0	0		
1	1		
10	2		
11	3		
100	4		
101	5		
110	6		
111	7		
1000	8		
1001	9		
1010	10		
1011	11		
1100	12		
1101	13		
1110	14		
1111	15		
10000	16		
etc.	etc.		

0	--	0	0
1	—	1	1
00	==	0	0
01	==	1	1
10	==	10	2
11	==	11	3
000	===	0	0
001	===	1	1
010	===	10	2
011	===	11	3
100	===	100	4
101	===	101	5
110	===	110	6
111	===	111	7

These tables were reproduced by Leibniz after he received the {I Ching} hexagrams from Father Bouvet. Note how the decimals of 1 and 0 reflect the ordering of the power of two. What does that tell you about growth, about doubling the square, about doubling the cube, and about doubling cycles in the Solar System and in the Musical System?

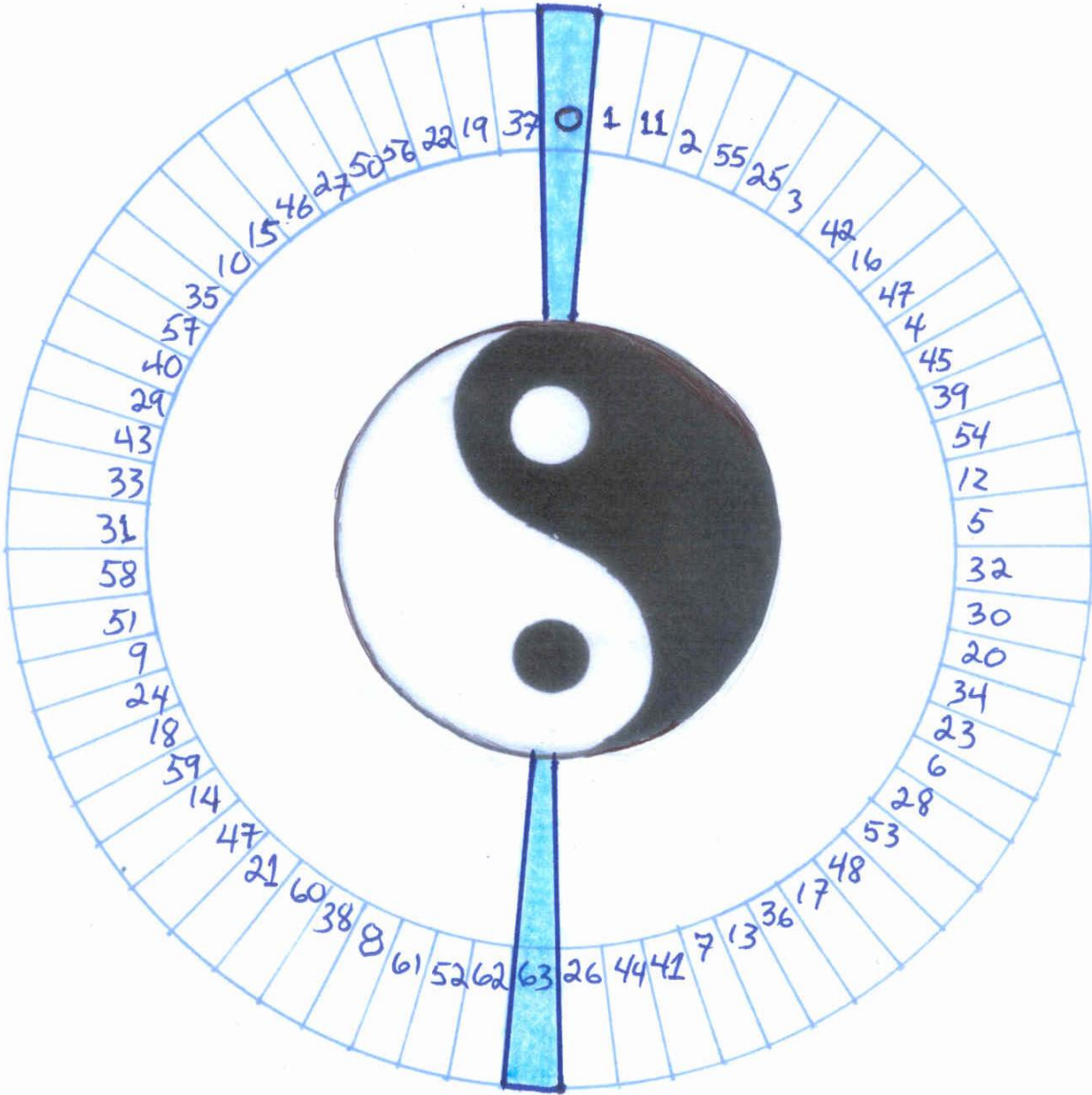
Study the above circular hexagrams attentively and patiently and find Leibniz's notations in western numbers. You will discover the ordering of the combinations behind the musical system of tuning at C-256 that Lyndon LaRouche advocated for classical musical composition. Start counting the 64 units of change from the bottom of the right-half-circle and rotate counterclockwise up to 31; then go back down across the diameter to the bottom left-half-circle to rotate upward clockwise to number 63.

**ADDENDUM: THE LEIBNIZ RECKONING PROCESS OF BINARY  
ARITHMETIC *I CHING* WAVES FROM 0 TO 256**

<u>000000</u> = 0			
<u>000001</u> = 1	010001 = 17	100001 = 33	110001 = 49
<u>000010</u> = 2	010010 = 18	100010 = 34	110010 = 50
000011 = 3	010011 = 19	100011 = 35	110011 = 51
<u>000100</u> = 4	010100 = 20	100100 = 36	110100 = 52
000101 = 5	010101 = 21	100101 = 37	110101 = 53
000110 = 6	010110 = 22	100110 = 38	110110 = 54
000111 = 7	010111 = 23	100111 = 39	110111 = 55
<u>001000</u> = 8	011000 = 24	101000 = 40	111000 = 56
001001 = 9	011001 = 25	101001 = 41	111001 = 57
001010 = 10	011010 = 26	101010 = 42	111010 = 58
001011 = 11	011011 = 27	101011 = 43	111011 = 59
001100 = 12	011100 = 28	101100 = 44	111100 = 60
001101 = 13	011101 = 29	101101 = 45	111101 = 61
001110 = 14	011110 = 30	101110 = 46	111110 = 62
001111 = 15	011111 = 31	101111 = 47	111111 = 63
<u>010000</u> = 16	<u>100000</u> = 32	110000 = 48	<u>1000000</u> = 64
1000001 = 65	1010001 = 81	1100001 = 97	1110001 = 113
1000010 = 66	1010010 = 82	1100010 = 98	1110010 = 114
1000011 = 67	1010011 = 83	1100011 = 99	1110011 = 115
1000100 = 68	1010100 = 84	1100100 = 100	1110100 = 116
1000101 = 69	1010101 = 85	1100101 = 101	1110101 = 117
1000110 = 70	1010110 = 86	1100110 = 102	1110110 = 118
1000111 = 71	1010111 = 87	1100111 = 103	1110111 = 119
1001000 = 72	1011000 = 88	1101000 = 104	1111000 = 120
1001001 = 73	1011001 = 89	1101001 = 105	1111001 = 121
1001010 = 74	1011010 = 90	1101010 = 106	1111010 = 122
1001011 = 75	1011011 = 91	1101011 = 107	1111011 = 123
1001100 = 76	1011100 = 92	1101100 = 108	1111100 = 124
1001101 = 77	1011101 = 93	1101101 = 109	1111101 = 125
1001110 = 78	1011110 = 94	1101110 = 110	1111110 = 126



1001111 = 79	1011111 = 95	1101111 = 111	1111111 = 127
1010000 = 80	1100000 = 96	1110000 = 112	10000000 = 128
10000001 = 129	10010001 = 145	10100001 = 161	10110001 = 177
10000010 = 130	10010010 = 146	10100010 = 162	10110010 = 178
10000011 = 131	10010011 = 147	10100011 = 163	10110011 = 179
10000100 = 132	10010100 = 148	10100100 = 164	10110100 = 180
10000101 = 133	10010101 = 149	10100101 = 165	10110101 = 181
10000110 = 134	10010110 = 150	10100110 = 166	10110110 = 182
10000111 = 135	10010111 = 151	10100111 = 167	10110111 = 183
10001000 = 136	10011000 = 152	10101000 = 168	10111000 = 184
10001001 = 137	10011001 = 153	10101001 = 169	10111001 = 185
10001010 = 138	10011010 = 154	10101010 = 170	10111010 = 186
10001011 = 139	10011011 = 155	10101011 = 171	10111011 = 187
10001100 = 140	10011100 = 156	10101100 = 172	10111100 = 188
10001101 = 141	10011101 = 157	10101101 = 173	10111101 = 189
10001110 = 142	10011110 = 158	10101110 = 174	10111110 = 190
10001111 = 143	10011111 = 159	10101111 = 175	10111111 = 191
10010000 = 144	10100000 = 160	10110000 = 176	11000000 = 192
11000001 = 193	11010001 = 209	11100001 = 225	11110001 = 241
11000010 = 194	11010010 = 210	11100010 = 226	11110010 = 242
11000011 = 195	11010011 = 211	11100011 = 227	11110011 = 243
11000100 = 196	11010100 = 212	11001000 = 228	11110100 = 244
11000101 = 197	11010101 = 213	11100101 = 229	11110101 = 245
11000110 = 198	11010110 = 214	11100110 = 230	11110110 = 246
11000111 = 199	11010111 = 215	11100111 = 231	11110111 = 247
11001000 = 200	11011000 = 216	11101000 = 232	11111000 = 248
11001001 = 201	11011001 = 217	11101001 = 233	11111001 = 249
11001010 = 202	11011010 = 218	11101010 = 234	11111010 = 250
11001011 = 203	11011011 = 219	11101011 = 235	11111011 = 251
11001100 = 204	11011100 = 220	11101100 = 236	11111100 = 252
11001101 = 205	11011101 = 221	11101101 = 237	11111101 = 253
11001110 = 206	11011110 = 222	11101110 = 238	11111110 = 254
11001111 = 207	11011111 = 223	11101111 = 239	11111111 = 255
11010000 = 208	11100000 = 224	11110000 = 240	100000000 = 256



Variation on Fuxi's 64 {I Ching} reciprocal hexagrams. What is the rule of the ordering?

Leibniz did not say how he discovered this Chinese puzzle, nor is it reported if Leibniz knew about the circular action characteristic of the Fuxi hexagrams and trigrams, nor if he had discovered that the series of whole number had been created by circular action. However, he did identify that the two {opposite and reciprocal features} of the broken and unbroken lines in the {I Ching} hexagrams were the basis for the power of two series.

However, one can establish how he could have discovered this complex circular action characteristic. First, Leibniz recognized how each character was made up of a series of only two opposite broken and unbroken lines; and that no two trigrams or hexagrams were the same. Secondly, he discovered that the 64 hexagrams were ordered in 32 pairs, whose unique characteristic was that they were all reciprocally interconnected when viewed from across the diameter of a circle. Thirdly, Leibniz may have realized that only numbers could be ordered in such a circular fashion, because only numbers reflected such cyclical change and expressed such a power to grow, as in the power of two series.

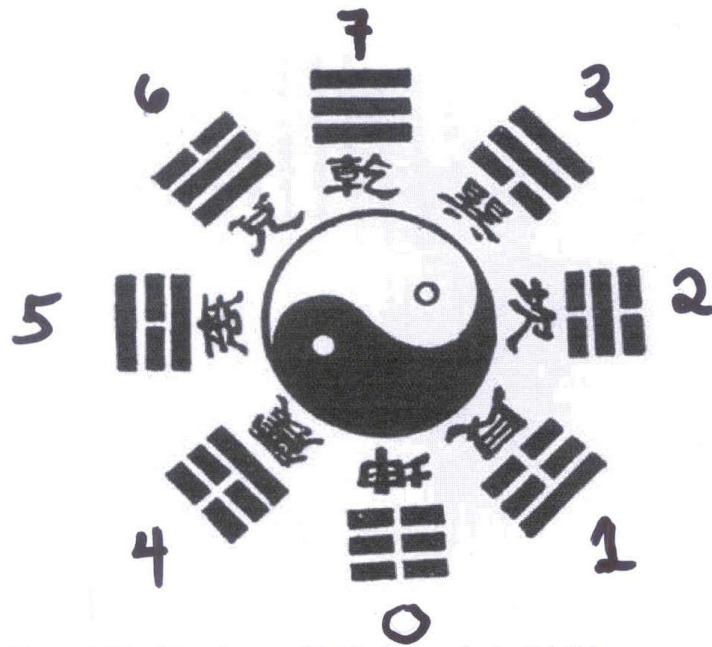
From this hypothesis of change and growth, Leibniz understood that the positions of the hexagrams were ordered in a continuously changing cyclical series which started from the six broken line hexagram at the bottom right half of the circle, and then, the next following hexagrams rotated counterclockwise up to the top to the half circle where the opposite hexagram of six unbroken lines is located, across the diameter. Now, pause for a minute, here, and ask yourself: What does that inversion or opposition tell you? And, where do you go from there?

First, that half circular action tells you that all 64 numbers are paired hexagrams crisscrossing the circle two by two in opposite locations from each other, at the same time that they are all in complete congruence and reciprocal complementarity with each other. This is akin to the concept of the Father and the Son in the Holy Trinity of the Christian faith. More than four thousands of years before Christianity came into existence, Fuxi discovered that the diameter (Holy Spirit) of the circle was the {unity of such opposites}.

How can you have such oppositions and unity at the same time? This can happen only when the pairs of hexagrams have reciprocity. {It is the idea of reciprocity that makes you discover that the characters correspond to numbers, and not to some other language code, because all of the 32 pairs add up to a total of sixty three (63)}. Thus, the reciprocity among all of the hexagram pairs is the One of the Many opposites, which is the principle that had to be discovered, as Plato had done in the {Parmenides}. This is the crucial link that unites East and West, Fuxi and Plato: the higher principle that connects the common aims of mankind.

The {coincidence of opposites} is expressed here by the rotating action of the diameter, which establishes a non-linear congruence and {reciprocity of opposites} around the circle as the Holy Spirit expresses the unity between the Father and the Son {Filioque} in the Christian religion. Thus, Leibniz understood that what Fuxi had discovered was the natural theology (epistemology) of what the Christians in the West called the {Filioque} as the principle of creativity.

As a result, Leibniz realized that such a cyclical and non-linear geometry of change by reciprocity of opposites was a memory function which could restore, by time reversal, the unity of reason and faith as the new higher power of mankind, which could connect the East and the West; that is, the means which can unify reason and faith for all of mankind and for all times to come.



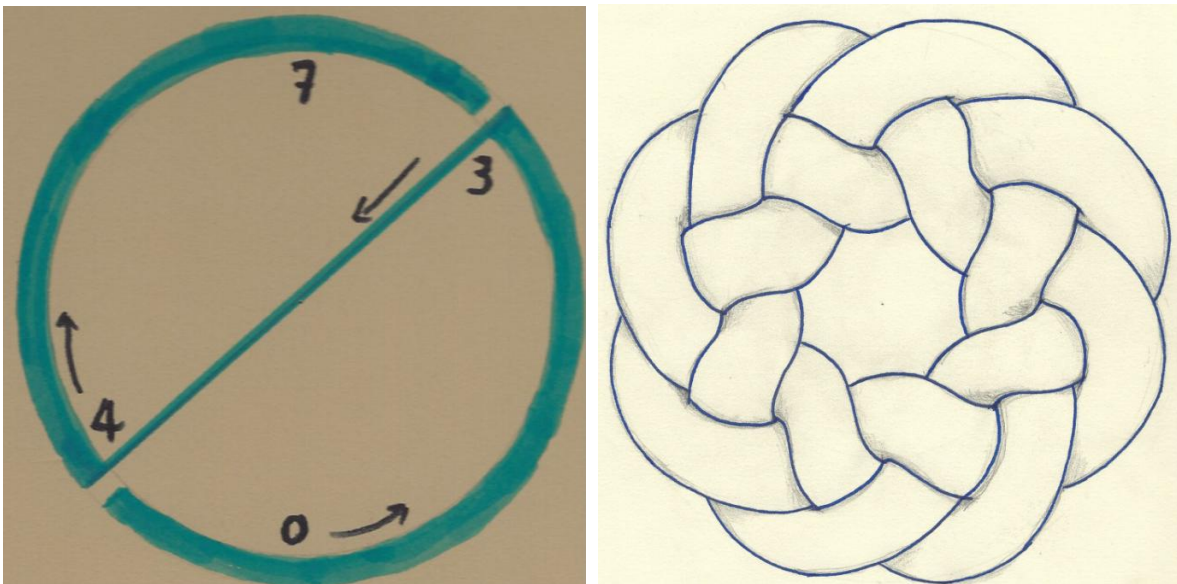
Fuxi's Eight Trigrams. Note how the reciprocity of all the numbers across the circle is everywhere 7 and the numbered lines are everywhere opposite inversions of each other across the circle.

Similarly, note that the reciprocity across the Fuxi trigrams is everywhere equal to seven (7) and that the reciprocal trigrams are all opposite inversions of one another. Here is how Leibniz saw the connection between the creative process of the human mind and the {coincidence of opposites} in the Holy Trinity:

“What Longobardi himself reports of the {Taikie}, the {Li}, – and the primitive ether or spirit, which at least corresponds somewhat to the Trinity of the Christians or of the Platonists – supports this. The {Taikie} is the power or the first principle; the {Li} is the wisdom which contains the ideas or essences of things; the primitive Ether is the will or desire – what we call spirit – from which activity and creation is effected.” [6]

Furthermore, Leibniz had this important insight with respect to Nicholas of Cusa: “The Chinese also call their {Li} a globe or circle. I believe that this agrees with our way of speaking, since we speak of God as being a sphere or a circle whose center is everywhere and whose circumference is nowhere.” [7] This idea, taken from Cusa is given a complementary dual dynamic which the Chinese generally represent by the {Yin-Yang} symbol of {Tai Chi}, or {Taikie}, as Leibniz called it.

The {Tai Chi} symbol of {Yin-Yang} (light-dark) should not be taken literally as an expression of antagonistic opposites, but rather as a principle of {unity of opposites}, such as the ordering of chirality everywhere in living nature, where each opposite is included into the other as the inverse of itself and where the {reciprocity of opposites} keeps growing by doubling itself.

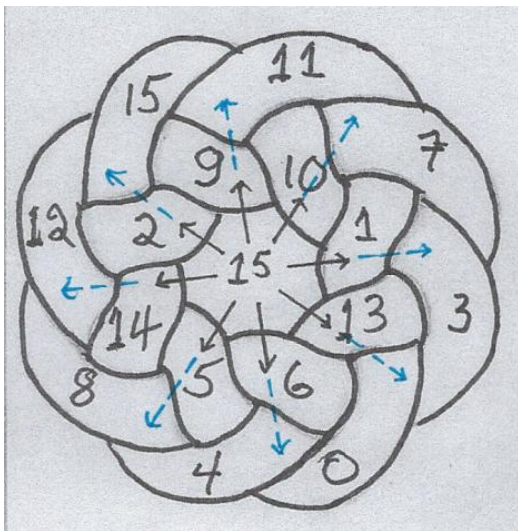


Discovering the geometrical ordering circular action principle in {Tai Chi}: The circular principle of Fuxi's Eight Trigrams doubling itself into a Biquadratic Sailor's Knot Octagon: Find the eight reciprocal pairs of numbers across the torus, which all add up to 15.

Then, Leibniz added this paragraph on the relationship of {Li} and God, which was later taken out of his published text. The text that was taken out said: “After all this, why not simply say that the {Li} is our God? That is, the ultimate, or if you wish, the primary ground of Existence and even of the possibility of things; the source of all good which is in things, the primary intelligence which was called by Anaxagoras and other ancient Greeks and Latin, {Nous, Mens}?” [8] Obviously, this text should not have been taken out of publication, because it reflects perfectly the {principle of agapic reciprocity} that Leibniz advocated and that The LaRouche Organization has been promoting around the world. For Leibniz, this {principle of reciprocity} is also the rule which precludes the formation of monopolies in economics and establishes the harmony between reason and power. As Leibniz wrote:

“Monopoly is avoided, since this Society always desires to give commodities at their fair price, or even more cheaply in many cases, by causing manufactured goods to be produced locally rather than having them imported. It will especially preclude the formation of any monopoly of merchants or a cartel of artisans, along with any excessive accumulation of wealth by the merchants or excessive poverty of the artisans-which is particularly the case in Holland, where the majority of merchants are riding high, whereas the artisans are kept in continual poverty and toil.” [9]

I must emphasize, here, the importance of this trigram circular action because such a {triple-connected function} is not only fundamental for understanding the creative process of the human mind, but also to understand why, centuries later, this {Ying-Yang} symbol represented the most important social Chinese practice known as {Tai Chi}, whose movements systematically involve the same well-balanced reciprocity as advocated and practiced within any peaceful human community.



The 8 pairs of 16 reciprocals are all equal to fifteen (15)

Furthermore, this cyclical memory function is the same that has been promoted more recently in China as a win-win policy that succeeded in lifting 840 million people out of abject poverty. This combinatory, periodical, and reciprocal modular principle of circular action is truly the crux of the Fuxi and Leibniz discovery: the principle of change for the realization of the Common Good in establishing a New Peace of Westphalia by the elimination of economic want.

If you have properly filled in the blanks of the above biquadratic sailor's knot, you will have found that you had to increase the speed with each unit of action, as if you were travelling in a spaceship to Mars. You will be able to fill in all of the empty intervals with as many future numbers as you wish, and the said numbers will, everywhere, be reciprocals. Such reciprocity is the unity of the multiplicity that you are looking for; that is, the One of the Many of Plato that Leibniz had rediscovered in the Creative Process of Fuxi. Furthermore, I am told by Fred Haight that J. S. Bach also used a similar principle for the composition of his Chromatic Fantasy, a few years before developing his Well-Tempered Clavier. [10]

## **CONCLUSION**

The fact that this type of ordering of combinations can be so easily numerated and written in such a recurring periodicity suggests that its progression, based on a least action form of circular action, is a superior form of arithmetic, which is exclusively based on the power of two; that is, on the power behind the C-256 musical system. It seems that this least action modality also corresponds to the Lydian modality resolution in Bel Canto singing.

The danger, however, is to fall into the illusion that the human mind could be replaced by some binary mathematical fantasy, as the fanatics of artificial intelligence would like to make you believe. However, the combination of the LaRouche challenge, the Leibniz binary system, and the hexagrams of Fuxi all reflect the same eternal yearning of the human mind toward a higher understanding and application of the creative process, including the ability to master the reality of change, from beginning to end, in accordance with a divine pre-established harmony. Does such a method not provide you with a sufficient sense of forecasting of how future events are expected to take place in the world?

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## Footnotes

[1] Helga Zepp-LaRouche, {Morning Briefing for Sunday, October 6, 2019}.

[2] Ibidem.

[3]Gottfried Leibniz, {Discours sur la théologie naturelle des chinois}, L’Herne, 1987.

[4] Gottfried Leibniz, {Discours sur la Théologie Naturelle des Chinois}, Wikisource. (Translated by Pierre Beaudry)

[5] Gottfried Wilhelm Leibniz, {Writings on China}, Open Court, Chicago and Lasalle, Illinois, 1994, p. 73.

[6] Gottfried Wilhelm Leibniz, {Writings on China}, Open Court, Chicago and Lasalle, Illinois, 1994, p. 72.

[7] {Writings on China}, p. 82.

[8] Ibidem, p. 80.

[9] Leibniz’s first writing on {‘Society and Economy’}, EIR, Vol. 18 No. 1, January 4, 1991, p. 12.

[10] Fred Haight reminded me recently that J. S. Bach had composed his Chromatic Fantasy on a similar principle using three Lydian spirals to generate all of the twelve key changes. Fred sent me an email stating: “The Fantasy goes through all of the keys, posits chromatic against diatonic, and constantly employs enharmonics, It ends with a series of double Lydians descending by half-steps, against a single tonic pedal point of D. The congruence between diatonic, chromatic, and enharmonic in theory, had been established, but it had a requirement in physical reality: a well-tempered instrument. Try playing it in a so-called Pythagorean tuning! Bach was attempting to do what he later did in the Well-Tempered-Clavier, in a single piece! Bach's first biographer, Forkel (of Gottingen University), wrote that Bach never composed anything else like it, before or after. Bach was both exploring the laws of the pre-existing musical universe, and creating them, at the same time!”

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