THE INFLUENCE OF HISTORY AND CULTURE ON SCIENCE AND PHILOSOPHY – JJH PERSPECTIVE FOR 20 QUESTIONS.

Jason Jixuan Hu, Ph.D.
Independent Researcher
Phoenix, Arizona, USA

Submit to the panel of the same name at ISSS 2017, Vienna, Austria. All questions in this conversational format paper are raised by Stuart Umpleby. Thanks for Stuart's sharp and important questions that facilitated the organization of my thoughts.

Q-1: How do you see the influence of history and culture on science and philosophy of science?

A-1: Big question, deserves a bid answer. First, I shall use a method of concept-simplification (we have to, in many cases). Thus:

- history = (hi-story: inaccurate, collective memory, sometimes with multiple versions.)
- culture = (set of cultural gene, distilled from history);
- science = (God 2.0, a specific and unique culture maintained by a special group called scientists);
- philosophy of science = (theology 2.0, the Level-1 study of sciences)
- study = (effort to obtain knowledge: level-0: unjustified, no evidence, assertions. Level-1: simple observation, logical reasoning, Gedankenexperiment; Level-2: large scale observation, statistics, use of measurement scales, datamining; Level-3: controlled experiment, strict use of mathematic tools, high precision experimentation equipment.)

History

Once I saw a Thailand English teacher in her class teaching the word "history", "it's so easy: everyone knows what a story is, everyone knows what hi or high means. So, high – story, hi – story, that's history."

Stories are created by memories of experiences plus imaginations. Story-telling is an activity (for those who live) or a phenomenon (for those who observe), as early as humans started to have languages, from around the primitive cave bonfire all the way to IMAX movie theaters today. I see history as a special set of system (S={E, R}) of stories arranged chronologically (i.e., E={stories}, R={time, causality}). Good history is evidence/record based, bad history is hearsay/myth based, distinction among the two is not always easy, especially when a group with stronger power making effort to brainwashing the others. Today the mainstream civilization maintains a relatively mainstream version of THE world history, constantly being improved for accuracy. But it is not fully agreed yet, for example by the Extreme Islamists or hardline Muslims, Dragon-minded Chinese, Leaders of Iran, North Korea, Cuba, etc. Note the total population of them is at least half of the population of this planet, therefore, whether we can have THE history as agreed by all human beings is still a question, waiting for an answer from future.

Culture

I run into 160 definitions of the word "culture" and used to create the 161th in Chinese. Recent years I found it more useful to drastically narrow down the meaning of this word. What is the most important in the core of a culture is its cultural genes, identifiable as "Belief-Behavior-Codes", or BBCs. (See ***). As the results of story-creating and story-telling, the lessons and morale from the stories can be simplified into the format of these BBCs.

Traditional myths, norms and habits, imagination of gods, religions, ideologies, and assertive theories and cult groups, are all human creations with a function of organizing individuals into groups. On a scale of social influences, religion (in earlier years) and ideologies (in later years) stands out as most important of such creations. I define both religion and ideology as "system of stories", (i.e. mutually related stories trying to be as consistent as possible.) Both providing explanation to key questions and guidance in behaviors, to non-science capable people. The major distinction among the two seems to be that one is more comforting oriented while the other is more vision-mission-action oriented.

Science

I see science as an off-spring of religion and philosophy, a unique egg among many eggs of human creation. (Cognition systems constructing realities that I call bubbles – some are more stable some are unstable, some big and some small. The more stable bubbles survived the trial of time hardenslike eggshell, again some small some big, some can grow larger and some broke.) Science is so unique due to these features:

a) it's the result of a group efforts across time and space on this planet, an ongoing, open-ending process; (so far space limited on this planet, time since Newton).

b) it explores sophisticated tools such as controlled experimentation and hypothesis testing;

c) it has criteria named falsification that no other eggs have,

d) most importantly, it improves human cognition capacity instead of reducing it, (both religions and ideologies tends to simplify the world and providing once-for-all explanations, solutions and guidance which are sufficient and satisfactory to the non-science-capable people.)

Therefore, function-wise, science is The Only Path for Improving Capabilities of Humans (TOPICH). The more TOPICH a society has, the more advanced it is. Maturana and Varela have a very good description of science from procedure-methodology point of view.

Now why do I simply it as God 2.0? Look at what Newton did. He took away part of God's job – he surprised the whole world by accurately predicted the time that Harley Comet showing up. Before him, everyone above on the sky is the God's business. But Newton started to compete with the God to provide explanations. Well, you can say that God sent Newton to earth to bring light to people. If that is true, then every scientist after Newton, including us here, is all sent here by God. Gradually, scientists did more and more and God is doing less and less. Here, "God's Will" is replaced, piece by piece, with "Law of Nature." Thus, I call science "God 2.0", of which we, are all part of.

Philosophy of Science

Scientists are trying to study as much phenomena as possible. When the target of understanding

becomes science itself, we get philosophy of science – because so far it is not possible to perform Level-3 study on itself, only very little Level-2 study on it, and mostly Level-1 methods are used, we cannot call this subject "science of science" yet, buy only philosophy of science. There is a religion branch named "scientology" but it is nothing relevant to science, neither is the newspaper named "Christian Science Monitor." My knowledge of philosophy of science includes authors like Russell and Wittgenstein, Karl Popper, Thomas Kuhn, Paul Feyerabend, summarized well by Alan Chalmers, and pushed further by your concept of the Corresponding Principle and the discussion on Second Order Science.

Now if we accept the analogy to perceive science as "God 2.0," things might become simpler, I hope, that we can copy the approach of theology, to construct philosophy of science as "Theology 2.0". Let's do a little bit interactive presentation here. Please go Wikipedia for the English entry of "Theology". Copy and paste the section named "Definition" into your word processor, replace words like "deity" and "religion" with "science" plus a little editing. What do you get?

Here is what I get from the above game, copied here in italics:

..."reasoning or discussion concerning science"; "the science of things scientific". The term can, however, be used for a variety of different disciplines or fields of study. Theologians (2.0) use various forms of analysis and argument (philosophical, ethnographic, historical, spiritual and others) to help understand, explain, test, critique, defend or promote any of myriad scientific topics. Theology might be undertaken to help the theologian (2.0):

- *understand more truly their own scientific tradition,*
- *understand more truly another scientific tradition, (what would be that?)*
- *make comparisons among scientific traditions, (umm, European vs. Arabic?)*
- *defend or justify a scietific tradition,*
- *facilitate reform of a particular tradition,*
- *assist in the propagation of a scientific tradition, or*
- *draw on the resources of a tradition to address some present situation or need,*
- *draw on the resources of a tradition to explore possible ways of interpreting the world,*
- *explore the nature of "scientific-ness" without reference to any specific tradition or*
- *challenge or oppose a (THE) scientific tradition or the scientific world-view.*

Is that interesting? I am not joking to propose the above, because I think it is time to consider science and religions and ideologies together, all systems of ideas, in a wider framework, because they are all very important agents influencing our civilization and our future.

One important distinction of God 2.0 versus God 1.0 is that, the new system is open ended – it acknowledges vast unknown frontiers as unknown. In God 1.0, He knows everything and we just need to pray. In God 2.0, we explore. Other than this major distinction, there are some similarities worth noting: scientists are "chosen" people – self-chosen – compared with people who do not believe in science; scientists worry about the end of the civilization – doomsday - in formats of nuclear wars or natural disasters; science is the universal and the only trustworthy source of knowledge; and education and enlightenment as crusades.

Relationship of the above as I see:

Now things are simpler, back to your initial question at the beginning:

Humans create tons of stories generation after generation. If they arrange them in a time sequence, they get history (hi-story, high-story, sometimes tall story. If they put them into a bigger picture like a zigzaw game, connecting them with linkages and try to be consistent, they get religion, or ideology. Every story carries something that story-teller wanted the story-listener to agree, that is called morale, or value, or BBC – belief-behavioral-code. Surrounding such BBCs, something named culture emerge as the group-holder that is second only to the language. Actually culture and language are highly mixed.

Because the stories in history and religions are mostly inaccurate and in-consistent, thus unreliable, the God on duty in year 1643 was frustrated and "let Newton be." (The evolution from multiple gods of primitive humans, emerged in many places on earth, to the single only God of Abraham, to the Jewish God, Christian God, and Islamic Allah, as competitors of God 1.0, is another story for another paper perhaps.) Newton in his time didn't know that he would be called "scientist" later, so he and his colleagues called themselves "natural philosophers." (William Whewell coined the world "scientist" in 1834). Note that many earlier scientists were servants to God.

Therefore, I would say that Jewish-Christian God 1.0 married someone named "ancient philosophy" and gave birth to science. How much help that Arabs and Indians contributed in that process is yet another story, we need to look into those details. But overall, science is the child of religion and philosophy, a main product of mainstream civilization, and is growing more and more mature, with a tendency to replace God 1.0, or if not replacing completely, at least run the world together.

Q-2: Heinz von Foerster invented the term second order cybernetics in 1974. Members of the American Society for Cybernetics have been promoting and advancing the idea for 40 years, lately with some success. Vladimir Lepsky at the Institute of Philosophy of the Russian Academy of Sciences, whom I met through Vladimir Lefebvre, said that he and his colleagues are working on third order cybernetics. Russian colleagues often spoke about "a more humanistic approach." I thought, "This sounds like Locke, Rousseau, and Voltaire." Perhaps the Russians missed that discussion, which was important in the development of democratic institutions. They were citing more recent Russian scholars. So, are the Russians reinventing earlier ideas or are they on to something the West has not developed?

A-2: Previously I thought, as many people, that HVF was simply ahead of time (as he said himself just 50 years ahead?). Later I realized that it is not the case. My other presentation in this conference is titled "System Thinking Is NOT for Everyone", disagreeing with our organizers who set the theme "System Thinking for Everyone." (See***) My explanation of the slow progress of SOC ideas being accepted is due to the slow progress of education (well, very very

slow indeed) which pushed the Bell-Curve 2.0 slowly towards right, i.e. a little bit higher cognitive capacity.

I have a similar or related topic presented at INSC 2017 conference at Salzburg in early April.

There are only two ways for a lag-behind society to catch up the mainstream civilization. One is adaptation – to acknowledge their backwardness, to follow and to learn. Another is to defend their "uniqueness" and refuse to follow and learn. In that case they have to re-invent the wheels. Smaller countries usually can go with the first path easily, but North Korea and Cuba are exceptions. Larger countries like Russia and China are infected by a special cultural virus (damaging cultural genes) and fall into the trap of the second approach. So most likely our Russian colleagues are reinventing… we have search carefully to identify if they are onto anything newly different.

Q-3: Systems problems can occur at three levels: 1) the world (e.g., building a fast rail system), 2) science (e.g., not having knowledge to combat an epidemic disease) or 3) philosophy of science (e.g., using an inadequate epistemology). It occurred to me that there was a fourth level (the social and philosophical orientation in the society). China has a very old civilization. What have they learned that the West can benefit from?

A-3: Almost nothing, according to my many years of inquiry. This is consistent with my model of mainstream civilization versus peripheral cultures. The key variable is the richness/diversity of cultural genes that accumulated from constant interactions between different societies, even in the formats of wars. China was unfortunately isolated from the rest of the world by huge mountains and vast deserts, and most Chinese mistakenly perceive that they are the center of the world. Understanding the truth (consensus of most people on the earth) is too difficult for them and therefore a lot of problems sprouted from that. That said, there are something that the West (I replaced this concept with "mainstream civilization") can be benefit from. The tradition of emphasizing harmony between human and nature might be one. But currently it is overridden by the trend of extreme capitalism.

Q-4: In universities people around the world now use essentially the same theories and methods in the physical sciences. There are some differences in the practice of medicine, but Western methods of biological research are widely known. In legal systems, there has been considerable convergence between North America and Europe due to the European Union. In social, political and economic systems there is great variety and much to learn. What's your opinion on this?

A-4: I mentioned the concept "mainstream civilization" earlier. In the framework of the mainstream versus peripheral, note I am not re-vitalizing "Western Centralism" or colonialism here. I define mainstream civilization as with the richest cultural gene pools, i.e. we can trace back the interactions of different societies, see through the various format of wars, trades, occupations, royal marriages, rise and fall of empires, etc., we need to focus on how one cultural

gene was generated from one place and transferred to another, how these genes mix and mutate, how the display themselves through civilization-level indexes such as the level of achievements in science, technology, medicine, and humanitarian developments such as ideas of human rights, creativity and innovation, etc.

In this framework, different types of political and economic systems can be ranked, in a scale of desirability, and with my recent work on Bell-Curve 2.0, in a scale of feasibility considering the landscape of cultural genes.

Q-5: About the interaction between the challenges societies face, and their social, political and economic structures and procedures. Is it correct that societies develop similar ideas eventually as they encounter situations requiring those ideas? Or do they develop solutions to similar problems? If the latter, what explains the difference?

A-5: I see differences more than similarities among less connected samples. For example, I just visited Amsterdam recently, the most amazing feature is its 100% legal red-light district. To my surprise, a church is centered in the district, surrounded by the windows of the sex worker girls. We attended a 5-minute church service there, and chatted with their staff. We also visited and interviewed a staff of their prostitution information center, a non-profit organization that educates the girls about work ethics and protection, and their clients about the proper behavior during the business process. It is unbelievable to observe the representatives of two conflicting value systems living and working together in a very small space, both comfortably and proudly. This is certainly a huge difference over many other cities in different societies. The key question becomes, what enables the Dutch people to achieve such a high level of tolerance? Note that in English there are a number of phrases making fun of Dutch people, besides the neutral "go Dutch," there are words like "Dutch courage", "Dutch metal", "Dutch nightingale", and "Dutch concert" and "Dutch treat"… now Dutch church? We really need to identify, what explains the difference?

Q-6: If societies can preserve and enhance their traditions, while learning from other societies, we should experience a remarkable flowering of human society. I think this is now underway. Do you agree?

A-6: You are more optimistic than me. It seems to me things would get worse before it's getting better. Look at North Korea, or Iran, or Turkey. I sense that Russia has been willing to learn – and incorporate into – mainstream civilizations after abandoning communism, but U.S. and Europe seem not very enthusiastic about it. Why? It's a puzzle to me. This is the major question I would like to discuss with Russian colleagues if there is a chance.

Q-7: My particular interest is in methods of governance which enable societies to be secure, stable and innovative. What is the status of the convergence hypothesis from the 1960s? This is the idea that societies in East and West would become more similar, converging on mixed societies with a market economy and some government-provided social services.

A-7: The Catch up Effect (I just know its another name convergence hypothesis) was translated into Chinese as "the Advantage of Later Comers" was refuted by a late Chinese economist, pointing out "the Disadvantages of Later Comers" and pointing to the situation of China. He was right. The Convergence Hypothesis assumed too many conditions that are not in the reality. Look at the middle East and a number of troubled and troubling countries. My "Bell-Curve 2.0" theory predicts results opposite to convergence hypothesis.

Q-8: What role does geography play in influencing the development of institutions? See Jared Diamond's *Guns, Germs and Steel,* particularly his discussion of the development of China versus the area around the Mediterranean Sea.

A-8: I have mixed thoughts to Diamond's geography-determinism. On one hand his explanation is consistent with my mainstream civilization hypothesis – attributing the key viable to be the richness of biological genes and species that enabled the birth of agriculture and livestock domestication, which in turn enabled the development of many advantages over the hunter-gatherer societies. Also, such richness of biological genes experienced more diseases and therefore developed much stronger immune system, which is another indicator of why Europeans are doomed to dominate and conquer indigenous people in Australia and American continents. On the other hand, Diamond's theory seems not able to explain why the Chinese agriculture society were conquered by less advanced societies from its north? We need to discuss more on this. I would rather replace his geography viable with "conditions to increase diversity" – both biological and cultural, i.e. geographical conditions as he listed, plus the initial choices of cultural leaders (i.e. Plato – Aristotle versus Confucius – Laozi, etc.) that together determined the emergence of institutions.

Q-9: What are present beliefs regarding the role of religion in governance? Has there been evolution in these ideas or are current differences a continuation of past differences?

A-9: "Render to Caesar the things that are Caesar's, and to God the things that are God's." Even Jesus said so according to the New Testaments [Mark 12:17], This principle of separating church from states seem to be in the mainstream of most of religions except one, which you all know which – the Sharia Law promoted by many and instituted in some Muslim countries, and is invading into countries where left liberals dominant, such as some European countries. Islam has an agenda towards global governance. It is actually an ideology with strong political strategies for conquering the whole world. Ideologies such as Communism and Nazism are not count as religion, but need to be considered here as well. Before we can have a theory about the

evolution of these ideas, we need to have an ontogenetic explanation of the self-organized emergence of religion and ideology.

Q-10: What is the effect of technology on society?

A-10: I classify technologies into two major categories. Anything that contributes to any flows, flow of goods and people, energy, and information, I name them "structural technology", e.g. anything in transportation and communication. Because, they serve to link the society together and make flows possible. The point is, once such technology upgrades, due to creativity and innovation, the structure of society upgrades. Other technologies that have no structural influence are general, so less interesting.

Q-11: Philosophers and scientists seek to answer questions. To understand the evolution of philosophy and science (natural philosophy), one must understand the questions that people were asking. So, what were the questions that Chinese philosophers were asking?

A-11: Unfortunately, not much. The first fact we need to pay attention is that China is virtually cut off from the rest of the world by huge mountains, large deserts and oceans. In thousands of years people there wrongly believed that that area was "all under heaven" (TianXia) and everyone beyond that area are "ghosts" (GuiZi). Without substantial interactions with the rest of the world (I mean any format of interaction including wars, trades, immigrations and colonialism etc. that results in enrichment of cultural genes), China is actually a peripheral culture with strong disadvantages compared with the mainstream civilization. There was no scientist growing locally at all, nor qualified philosophers comparable with the mainstream, in terms of inventing questioning (as Socrates), building up thinking through dialogue (as Plato) and writing systematically and comprehensively (as Aristotle). Confucius writing was actually recorded by his students, piecemeal, anecdotal, loosely relevant, not systematic. Mencius the same, only with more cursing and blaming opinions different from his, without logic. Believe or not, the Chinese society dragged on for 2000 years without logic. Euclid geometry was introduced only in year 1605…by these two guys…(PPT, story)

Coming back to your question. Chinese philosophers, if any, did not ask clear questions. They do have different attentions. Confucius attention was how to establish a hierarchical order for the society. This is exactly why he was picked up by the Han emperor as the only official teaching while banning all other scholars, who had different concerns.

Q-12: I think Confucius, Lao-Tsu and other philosophers lived during the waring states period. What were the wars about? Not religion, I think. Territory? Personal animosity? How did Chinese philosophy attempt to solve these problems? By creating a structure of obligations and preferred relationships?

A-12: The wars were basically territorial. There was one guy, half scholar half mafia, who objected the wars. His name was Mo Zi. He also had roughly primitive ideas about logic, a little bit scientific thinking. However, he was not chosen by those in power as important, thus mostly forgotten. The unification of the warring states was due to a cruel minister, Shang Yang, of Qin State, who created a beast-like army for the first emperor, conquered the rest of the states. Confucius did create a design of social order, in terms of "the three cardinal guides (ruler guides subject, father guides son and husband guides wife) and the five constant virtues (benevolence, righteousness, propriety, wisdom and fidelity) as ethical code, sort of in the place of Moses' "Ten Commandments."

Q-13: Most early civilizations created astronomy in order to improve time of planting and hence agriculture. I think the Buddha was concerned with suffering. Lao-Tsu wanted to separate from the world. Confucius tried to teach people how to behave. Was there curiosity about the natural world? Certainly, the Chinese mastered silk production. And there were the sailing explorations of Wu Li (?) Why were these stopped?

A-13: Buddha was an import, something India throw away, but took root in China. There was little, very little, curiosity about the natural world, represented in a book named "Tiangong Kaiwu" ***The Exploitation of the Works of Nature*** in 1637, and there were some Chinese medicine books, that's all. The reason such curiosity stays at very low level is because, officially they are discouraged and looked down upon.

The sailing story you mention should be Zheng He's voyages. https://en.wikipedia.org/wiki/Zheng_He Note it is completely incomparable with Columbus. Zheng's voyages were all to the familiar places, not like Columbus going into unknown areas. Zheng was actually from an Arabic family, who already traveled those routes before he was tasked by the emperor to enhance existing relationships with local rulers on his routes, but, most importantly, the emperor had order to forbidden non-official sailings. Zheng was sent to destroy pirates and non-official trades on the sea. Those voyages (7 trips, from 1405 to 1433) was stopped because he died (he might be the only person who were able to do it).

Q-14: I think Joseph Needham said that artisans were not respected, even though Chinese pottery was the best in the world. I think the Chinese regarded trade as tribute to them, not exchange of goods of equal value. These are the kinds of beliefs and values that I think would interest people. How have these beliefs changed?

A-14: In old China trade and commerce was at the lower rank of social status. "Businessmen" is the lowest rank of the "four basic types of people": 1-Scholars, 2-Peasants, 3-Workers, 4-Businessmen. The basic belief was that trading and commerce were not order-friendly, and were frequently related to scams. In later 19th century and earlier 20th century, capitalism entered into China and there was considerable development, only to be wiped out completely after CCP took

power in 1949. Communism brought the country to huge disasters till 1979 when Deng Xiaoping re-introduced capitalism. However, it is the capitalism in its worst format, without Christian or Protestant value system. This brings China into today's situation – in money they trust, everything else is gone. A few years ago, a child was hit by a car in middle of the road and 18 people passed by without offering help. A big news. But last week another woman was hit by a car again with no one even slow done. She died after run over by the second car. Complete moral-less is the appropriate word to describe the current social situation under CCP rule.

By the way Needham was discredited by later scholars pointing out that he actually had fake information about China, since he himself didn't read Chinese, all his imaginations about China came from his Chinese girlfriend. His worst invention is the wrong claim that China invented gun power, compass, paper and printing press. None of these were completely true.

Q-15: Certainly colonial rule was a painful experience in China. Many societies have worked to "get their act together" in order to repel foreign invaders. They feel humiliated to be conquered, and they learn technology and management and law from the colonial rulers. What caused the earlier prosperity and world leadership – the compass, paper, printing press, gunpowder, etc.?

A-15: According to CCP terminology, China was "half-feudalistic-half-colonialized" before CCP. That is a problematic concept as well, since China had finished "feudalistic" stage 2000 years ago and was actually a despotic system in next 2000 years. The painful experience encountering the West was largely caused by not able to interact with the rest of the world properly. In my perspective, the Chinese civilization as a local wonder in east Asia peaked in Tang (618-907) and Song (960-1279) Dynasties, and declined afterwards. China was ruled by foreign forces completely at least twice – once by Mongolians (1271-1368) and once by Manchurians (1644-1911). Or three times if you count CCP as a Russian force, which is actually what they have been since their birth in 1921 till splitting with USSR from 1958-1969.

Earlier prosperity (Tang and Song Dynasties) were due to convergence of cultural genes, in my model, as the self-organizing processes in the relatively closed geographic area matured. I am not sure if "world leadership" ever existed, except fanciful boasts by Marco Polo (1254-1324) who traveled to China in 1266 and 1275. Historians are still debate if his trips were true or if he was just fabrication stories heard from Persian merchants.

Q-16: How is China now learning about governing? Do they still think that a hierarchy is the way to govern rather than markets, competition, balance of power, division of authority, etc.?

A-16: Very problematic. Governing has two levels of connotations – principles and skills. They have been learning (since late Qing Dynasty) as many skills as they can get hold, such as accounting, stock market, public companies, contemporary management skills, etc. But at principle level, "power corrupts" is denied, "balance of power" is denied, "freedom of speech" is denied, and "human rights" is denied. In my model, I labeled two sets of conflicting value

systems – pandas versus dragons. Pandas want to adopt universal values held by mainstream civilization. Dragons want to have things "in Chinese Way." Nowadays Dragons are heavily dominant.

Q-17: Why do societies develop the way they do? What is the influence of geography, wars and invasions, religion, philosophy?

A-16: If we believe the principles of self-organization is universal, also applicable on the dynamics of societies, then we only need to identify the key algorithms, or "the unchanging principles" in the ontogenesis process of societies, along with specific initial conditions. From this point of view, I agree with Jared Dimond completely – it was the geographical advantage, of the higher diversity of plants and animals available, to allow the agricultural society to emerge, able to beat hunter-gatherer societies in many ways. There is no accident that the most advantageous location is the Fertile Crescent area. Development in this area was able to spread agriculture to both its west and its east.

My hypothesis is that the richer (i.e. with more varieties) the biological genes, the stronger the civilization at the initial stage. Once languages and religions come into play, the cultural genes took over the "steering wheel" to drive the civilization. Same principle here – the richer the cultural gene pool, the stronger the civilization. Any format of interactions – wars and invasions, trades and marriages, missionaries for religions, immigrations, etc., all serve to enrich the cultural gene pool. The richest gene pool defines what I call "mainstream civilization." I strongly suggest that we use "mainstream civilization" versus "peripheral local culture" to replace the outdated, and malfunctioning, "West-East" paradigm.

Q-18: What have been the formative pressures and events in several societies -- EU, US, Russia, China, India, Middle East?

A-18: I have little knowledge about EU, Russia and Middle East so far. Have some for US, a lot for China, and a little for India. I am trying to build a generic model, of the evolution of civilizations, with the hope to gain explanatory power even for the societies I do not have data. This is the "mainstream vs peripheral" model, about the formation of cultural genes and their spreading and evolution. Arnold Toynbee's "Challenges versus Responses" framework is still useful, if we combine insights from self-organization theories and evolution theories. I am also trying to expand original self-organization theories (Ashby/HVF/Prigogine/Haken) into Multi-Layer Self-Organization framework, so to build a long-range explaining capacity and hopefully some prediction capacity.

In this perspective, what you call "formative pressure" would be the cultural gene driven attentions/intentions/actions at a micro-level (individual and small group level) that generates, after many iterations, overall behaviors of a nation/state/society. Examples include the growth of Roman Empire, Invasions from Muslims(see Bill Warner), Crusade, Columbus, Colonialism,

backward countries (Germany, Russia, Japan, China, India) encounter/confront/response to the forces from mainstream civilization, and globalization.

Now, Germany and Japan has successfully merged into mainstream. Russia is in the process, in right direction I think, no matter how people dislike Putin, I think the mainstream has no good reason to demonize Russia after they renounced communism. China and India in my model are neither succeeded nor failed countries, I call these two "ugly countries" since there are a lot of ugliness going on in both of them, and positive forces in these two countries are struggling very hard to get things right. My knowledge of India is not enough to have an outlook for it, but for China things are very bad and I cannot find evidence to be more optimistic. I see the current China as more of a threat to the mainstream civilization. People all perceive North Korea as an evil center, but the true evilness comes from Beijing, as the leftover effect of the communism movement and the cold war.

Q-19: How are societies changing now?

A-19: In addition to the above "formative forces," we now have three very inconvenient things coming: 1- advance of artificial intelligence issue (singularity) that is creating what Yuval Harari called "Useless Class," much more of a nightmare than the rise of the proletariat from later 19th century. Think what proletariat/communism did to human beings; 2- longevity drug leading to immortality, which will severely amplify the conflicts between the rich and the poor; and 3- the technology to enable thinking-controlled machines, and vice versa, technology to monitor human minds. These three guests will inevitably create huge change in social structures and how humans organize themselves, among a time that the mainstream civilization (i.e. U.S., U.K, EU, Germany, etc.) seem to have lost the sense of direction. We are entering into un-charted water in darkness. I think there is a very high probability that some large-scale disasters are not avoidable, which will serve as a refreshing and awakening game-changer. The most important and emergent task now, I think, is to rebuild a sense of direction of our civilization on this planet.

Q-20: What are the motivations to make fundamental changes -- competition with other national groups, concern about access to resources, concern about climate change, resistance to change due to political ideology or religion?

A-20: This is the critical key question. We need another conference to discuss this. First, we need to have an analysis of what exactly are the action groups – interests groups – that has capacity to make or to cause change. This will be like a landscape map of all the players/participants – and what their consensus are, if any. I now understand that religions and ideologies are powerful agents to cause change – they are the same thing on a spectrum I call "system of stories." Compared with these systems of stories, science is still a very weak "teenager-like" participants in the game. This is because the Bell-curve 2.0 – the normal distribution of human cognitive capacity – doomed us that a larger portion of the population – or

voters – cannot digest science. See the global warming debates. Therefore, religions and ideologies are never a thing of past. Instead, we need to renew them and restore their guiding functions for the whole population – a daunting task indeed, and we'd better do it well, at least better than Karl Marx, who really screwed things up.

References (to be completed)

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