**SCIENCE, TECHNOLOGY AND SOCIALITY:**

**UNDERSTANDING THE HUMAN**

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**A. INTRODUCTION**

**(1) Scientific Revolution in the West**

1a. From the sixteenth century, Copernicanism and then Newtonianism profoundly impact upon Christian beliefs about the nature of the world, materiality and the self.

1b. Christianity was at the heart of Western civilization, and reductive materialism, with its technological extensions, deeply reshaped Western philosophy and culture, separating mind and body, body and world.

1c. *Homo faber* (‘technological humanity’) becomes the dominant public model of the self in Western modernity. Enlightenment reasoning reflects scientific and technological reasoning. This is observer-reasoning, which serves to reduce complexity.

2a. In the late twentieth century, evolutionary anthropology and social neuroscience begin to lay bare a powerful, alternative, scientific view of the self, as social or *homo socius* (‘social humanity’).

2b. At the heart of *homo socius* is a different kind of reasoning: social reasoning. This is participative-reasoning and it unconditionally embraces complexity. Social reasoning drives human solidarity.

3. In us, how do *homo faber* and *homo socius*, with their different kinds of reasoning, combine and relate?

**B. METHODOLOGY**

**(2) The Methodological Challenge**

1a. Science delivers authoritative *knowledge* but not the *meanings* by which we live(scientism is the failure to understand this).

1b. Scientific knowledge is highly specialized and diverse.

2a. For the human person however integration is fundamental.

2b. We live by short term and long term *meanings*: social, implicit or explicit, practice and context-based, narrativist, pragmatic, creative.

3a. Science is ‘objective’ (i.e. ‘causal’), while the person is ‘subjective’ (i.e. ‘free’). These have engendered different kinds of philosophy in the past.

3b. *How then can we now learn from the science of human sociality what it is to be human?*

**(3) Three Resources**

1a. There are three principal resources for understanding the human in depth, as both social and technological, from a scientific perspective. The first is *evolutionary anthropology*. This is focused on the ‘past’. It is ‘time-based’ and concerned with our ‘becoming’. It studies both our sociality and our tool-use. It accesses the archaeological record and engages with periods prior to the emergence of advanced modern language. This is functional analysis at the micro-level.

1b. The second is the *neuroscience of social cognition*. This is concerned with our ‘present’ and with what we are today. This science is concerned with the ‘deep’, ‘participative’ and interactive communication and bonding of our bodies at speeds beyond the awareness of consciousness. It focuses on the pre-linguistic ‘anatomical space’ of the human social cognition system in the living human brain. It too is functional analysis at the micro-level.

2. The third resource are living or ‘deep’ communities in our own modern world which can show pronounced longevity and expansion. These are carriers of long-term meanings. *It is reasonable to assume that such long term meanings must be grounded in the structure of the human body as a constant across space and time.* They must be in some kind of relation with our ‘deep’ biology. Arguably therefore, long term communities (e.g. Confucianism and Catholicism) can offer data for a functional analysis of human sociality, *at the macro-level*. This will reflect both our pre-linguistic embodiment and the advanced linguistic self, as these combine in us as modern human beings.

3a. Do evolutionary anthropology and neuroscience of social cognition *overlap* in their ’seeing’ of the human? If so, what might such an overlap ‘mean’?

3b. Can science help us to identify a fundamental structure within the pre-linguistic/linguistic divide of our human embodiment? If so, can such a structure provide a new point of departure for philosophies of the self in the world, as both social and technological?

3c. How is the combination of *homo socius* and *homo faber* in ancient human beings changed by the emergence of advanced modern language and the advanced linguistic consciousness that it supports?

**(4) The Creative Overlap**

1. Evolutionary anthropology shows that our power of bonding is ancient: systemic altruism is present in our genus from 1.8 million years ago. (Spikins et al. 2010).

2. Neuroscience: the social cognition system (by which we bond) involves processes that recognize human movements and involve high density information exchange through motor reflexes. These are early developing or ‘ancient’ areas of the brain (Vogeley 2016).

3. Evolutionary anthropology: advanced language and advanced linguistic consciousness are very late. Sporadically present perhaps from 60,000 yrs ago and systemically present from 12,000 years ago (first full representations of the human face and first massacre from 10,000 yrs ago).

4. Neuroscience and language: the recently discovered ‘semantic system’ is in the neocortex, which is the most ‘recent’ area of the brain (A. Huth et al. 2016). The meanings of even the most sophisticated words are located physically in the three-dimensional voxels of the neocortex. (Even advanced mathematics entails the materiality of the sign by which we are always in our body, even as advanced linguistic consciousness). The late emergence of advanced language was governed by cultural and environmental factors rather than by biology or genetics.

5. There are two separate systems in play in the human body: the early, pre-linguistic altruistic system and the late developing, self-aware, advanced language system which supports advanced linguistic consciousness.

6. Since both entail different kinds of reasoning, within the single human body, we can say that there is a potentially highly creative unity between *homo socius* and *homo faber* but also a potential tension.

**C. HISTORY**

**(5) Unity and Tension within the Human**

1. *Homo socius*
Reasoning: participative; open; non-controlling; non-objectifying; non-instrumentalizing:
ACCEPTS COMPLEXITY

2. *Homo faber*
Reasoning: observer; controlling; objectifying; instrumentalizing:
REDUCES COMPLEXITY

3. *Homo socius* is the person to person reasoning of the FACE (sharing)

 *Homo faber* is the person to world reasoning of the HAND (working)

**(6) What makes us Human?**

1. For three million years we have shown signs of being both social and technological.

2. Our sociality and our technology are both *creative* (seeing the person in the movements of the face; seeing the tool in the stone).

3. Human evolution has been guided by the close and intense interaction of *Homo socius*  and *Homo faber*: the so-called ‘ratcheting effect’. Tool manufacture was always learned in groups and so was social.

4. The balance between *Homo socius*  and *Homo faber* was controlled by *culture* and *environment*. In times of *socius*, we were more static, in times of *faber* (contact with new technologies and groups), we were more innovative.

5a. Our advanced modern language, with its origins in both ‘face’ and ‘hand’, is the creative realization of this dual creativity. The brain thinks modern words are ‘tools’ (and they appear following the development of sophisticated Levallois and Mousterian tool-making techniques).

5b. The learning of a language is the internalization of material signs, of sound or shape, which are held in common across a linguistic community. This points to a common material change in the brains of members of that community, which grounds the possibility of an enhanced sociality.

5c. Highlighting the external materiality of the sign which occurs in close relationships (laughter, repetition, stories) or, in organized form, in world religions (calligraphy, chant, singing), emphasizes the social sharing function of words within a community and counters their potentially instrumentalizing materiality, even as a potential weapons-system.

**(7) The Neolithic Challenge**

1a. Prior to the Neolithic (c. 10,000 years ago), we lived in the main in peaceful hunter gatherer groups of only 300-400.

1b. With the Neolithic came agriculture, settlement and walled townships, and a significant, sudden increase of population size to 3000-4,000.

1c. The ‘Dunbar’s number’ suggests that we can only sustain face-to-face relationships with up to 150 people.

1d. With the arrival also of advanced language, the first systemic massacre of a community of human beings by another occurs in the early Neolithic some 10,000 years ago. Words and tools have become weapons in the hand that are turned against the human face. There is no evidence of systemic intra- or inter-human violence before the Neolithic.

2a. We are the sole human lineage to survive into the modern period (of 20 or so). How did we survive the Neolithic with its significant destabilization? How did the human social cognition system adapt to larger populations?

2b. What lessons can we learn from this early adaptation for today, when we are once again experiencing ‘population growth’, or the compression of space and time, through processes of globalization?

2c. *Can we re-discover the fundamental unity of technology and sociality in genus Homo? (cf. Marx in ‘Results of the direct production process’, 1864, publ. 1933). What practices might reveal this?*

**D. THE HUMAN SOCIAL COGNITION SYSTEM**

**(8) The Adaptive Human Social Cognition System**

1a. Modern advanced language is the creation of the creativity of both *face* and *hand*, in combination.

1b. Modern advanced language can embody either a) the *face* and its sharing social and participant reasoning or b) the *hand* and its working and ordering reasoning of the observer.

1c. The human social cognition system is an internal and biological system, composed of harmonic rhythms and interactive responses at speeds imperceptible to consciousness.

2a. History suggests that in the Neolithic this internal and biological system pressed through advanced language and realized itself externally and culturally in the social spaces between people.

2b. The human social cognition system adapted to larger numbers by externalizing itself in culture through *performance*.

2c. This constituted an enhancement of *homo socius* to counterbalance an enhanced *homo faber*.

**(9) The Cultural Performance of the Human Social Cognition System**

**Religion and Values**

1a. RITUAL: rhythm, harmony, movement in social spaces (禮 Lĭ)

1b. ETHICAL IMPERATIVES: Golden Rule, ’social reasoning’, compassionate reasoning (義 Yì)

1c. LOVE: reason and emotion combine in compassion (仁 Rén, 心 Xīn)

1d. HEAVEN: the externalization of the social cognition system as internal world, grounds cosmologies of human ultimacy (天 Tiān)

**Civilization**

2a. RECIPROCITY: Mutual obligations (德 Dé)

2b. ARTS: calligraphy, music, mathematics … (六藝 liù yì)

2c. ALL UNDER HEAVEN: global identity, borderless societies (天下 Tiān-xià)

2d. CULTURE: transformation of the patterns of nature (文 wén); manifestation of human potency (三才, sān cái)

BUREAUCRACY: delegated authority: ‘systemization, customization, routinization’ (Ge Zhaoguang, 2017)

**Self**

3a. Agency arguably lies with the social cognition system which is a highly adaptive system that has secured our long term survival

3b. Advanced linguistic consciousness is arguably called by its very nature as integrative system (‘global workspace’) to further integrate with the powerful harmonic structure of the human social cognition system

3c. Such integration occurs where advanced linguistic consciousness freely assents to the body’s social reasoning in interfacial or social contexts

3d. This is for advanced linguistic consciousness, which is designed to *reduce* complexity, to learn to tolerate the *acceptance* of complexity in the human other

**E. QUESTIONS**

**(10) Re-Balancing Face and Hand**

1. Newtonianism effected a substantial cultural enhancement of *homo faber*, to the virtual exclusion of *homo socius*, in Western modernity. But contemporary science now offers an enhancement of *homo socius* which can rebalance *faber* and *socius*. Western culture is resistant to *homo socius* however. Can we say then that China is the natural home (‘the host culture’) which can bring about the recalibration of genus *Homo*?

2. Can China integrate the new science with its long term traditions and long term meanings in ways that will allow the greater recognition of a continuity between the two? Could this lead to practical adaptations in the use and development of new technologies in China which can produce a greater social viability and sustainability across the globe?

3. Paul Ricoeur called for a comparable understanding of our human materiality (our social embodiment) to match the understanding we have of the materiality of the world which gives us technologies. While affirming the priority of its power in life and society, Ricoeur denied that philosophy can begin in the human face to face. Since it contains no possibility of objectification, it cannot be the point of departure for a critical philosophical analysis of the human (Ricoeur, 1974).

 But as the continuity and discontinuity of reasoning between *homo faber* and *homo socius* has come into view, science now offers us an objective structure in the face to face. This is a fundamental structure within the human, as evolved. It is the ‘overlap’ between cutting-edge evolutionary anthropology and the neuroscience of social cognition which grounds its visibility. But what kinds of philosophy might this produce? And would these reflect principally Chinese ideas and traditions? Or is there the possibility of a new kind of Chinese-Western dialogue here, bringing together philosophical resources from both East and West in the articulation of this fundamental new science of the human?