

LIFTING THE STUDY OF CHINA ONTO A HIGHER PLANE

Hans Kuijper

(j[underscore]surname[at]online[dot]nl)

‘In Truth there is no division’ (Shankara)

‘Immer strebe zum Ganzen’ (Goethe)

‘Only connect’ (E.M. Forster)

ABSTRACT

The thesis submitted in this paper is that there is something fundamentally amiss in Western sinology: ‘China experts’ either pretend to be knowledgeable about everything related to China, in which case they cannot be taken seriously, or admit not to be a scientific all-rounder, in which case they cannot be called ‘China experts’. First, after an introduction, an attempt will be made to give a definition of ‘science’, the definiendum not being restricted to the business of natural scientists. Secondly, the question will be raised as to whether sinology can be considered a science. The criticism will be leveled at studies of China carried out in Europe and America. Thirdly, objections that could be voiced to the thesis will be countered. Fourthly, a constructive response to the challenge launched in the article will be suggested and a two-pronged way ahead will be indicated. Fifthly, the importance of taking China to be a hugely complex system, and, consequently, of engaging in scientific collaboration, will be emphasised. Finally, a grand research project proposal, entirely in line with the argument against the conventional Western way of doing China research, will be made. Overall, the author (graduate of Leyden University, retired civil servant and former Dutch ‘ambassador’ to Taiwan) firmly believes that, for better inter-national relations and more inter-cultural understanding, the study of countries in general, and of China in particular, should be taken to a higher level.

Key words: area/country studies, complexity, e-science, interdisciplinarity, modernisation, sinology

INTRODUCTION

The study of China has a long history. In the West, its origin is traditionally traced back to the late 16th century, when Jesuit missionaries, notably Michele Ruggieri and Matteo Ricci, introduced Christianity into the country. Though they seriously attempted to understand the Chinese (read: Confucian) way of thought, a fact that sets them apart from Marco Polo (whose journey to, and adventures in, Cathay are recorded in the 13th-century travelogue *Il Milione*), it tends to be forgotten that evangelising (trying to persuade Chinese to become Christians) rather than studying the Middle Kingdom was the primary and principal objective of their exercise. The shock troops of the Counter-Reformation might have been ‘brilliantly successful in interpreting China to the West’ (Colin Mackerras), the interpretation betrays their missionary agenda.

These early pioneers were followed by a train of scholars coming from different backgrounds and having different agendas. Notable names are Nicolas Trigault, Giulio Aleni, Álvaro Semedo, Adam Schall, Michał Boym, Martino Martini, Ferdinand Verbiest, Philippe Couplet, Antoine Thomas, and Joachim Bouvet in the 17th century; Giuseppe Castiglione, Antoine Gaubil and Joseph-Marie Amiot in the 18th century; and Hyacinth Bichurin, Robert Morrison, William Milne, Abel-Rémusat, Walter Medhurst, Stanislas Julien, Édouard Biot, Antoine Bazin, Karl Gützlaff, August Pfitzmaier, Samuel Wells Williams, James Legge, Pyotr Kafarov, Joseph Edkins, William Martin, Emil Bretschneider, Georg von der Gabelentz, Gustaaf Schlegel, Jan de Groot and Wilhelm Grube in the 19th century. Whereas in the 17th and 18th century positive reports on China inspired the development of *chinoiserie* and the comparing of Chinese to European culture (unlike Montesquieu, who detested China’s despotism, Leibniz and Voltaire described the country as an example of the enlightened state), in the 19th century, particularly after the First Opium War, the image turned negative.¹

¹ See José Frèches, *La Sinologie*, Presses Universitaires de France, 1975, 9-61; David Mungello, *Curious Land*, Franz Steiner Verlag, 1984; Thomas H.C. Lee (ed.), *China and Europe*, Chinese University Press, 1991; J.J. Clarke, *Oriental*

In the late 19th century, the study of China made a major shift, definitively taking the university as its base. Leading Western China-scholars born in the period 1860-1940 were/are, in chronological order: Otto Franke, Édouard Chavannes, Paul Pelliot, Henri Maspero, Marcel Granet, Jean Escarra, Bernhard Karlgren, Jan Duyvendak, Paul Demiéville, Karl Wittfogel, Joseph Needham, Max Loehr, Karl Büniger, Étienne Balázs, Herrlee Creel, Jaroslav Prušek, John King Fairbank, Derk Bodde, Wolfram Eberhard, Anthony Hulsewé, Arthur Wright, Herbert Franke, Benjamin Schwartz, Janusz Chmielewski, Sergei Tikhvinsky, Angus Graham, William Theodore de Bary, Jacques Gernet, Frederick Mote, Michael Loewe, Denis Twitchett, Lionello Lanciotti, Erik Zürcher, Roderick MacFarquhar, Lucien Bianco, Merle Goldman, Jürgen Domes, Mikhail Titarenko, Kristofer Schipper, Oskar Weggel, Anna Seidel, Edward Rhoads, Michel Oksenberg, and Glen Dudbridge. Their life was/is centred on learning about China, and their works are both extensive and impressive. Many of their numerous students are holding Professorial Chairs across the world.²

Since the end of the Second World War the literature on China has dramatically increased, and particularly since the 1980s Western bibliographers have difficulty keeping up with the flood of China related publications. In 1956, under the editorship of Piet van der Loon, the *Revue Bibliographique de Sinologie* was founded as leading European source of information on current sinological publications. Its announced fields of interest were 'history, fine arts, archaeology, music, linguistics, literature, philosophy, religion, and history of science', and the coverage included books and articles in Chinese, Japanese and the major European languages. After a lapse of more than a decade, a new series was inaugurated in 1982, increasing the emphasis on Chinese publications. In 2006, after 50 years of scholarship, the official announcement was made that the review's publication had ceased.

The *Bibliography of Asian Studies*, compiled by The Association for Asian Studies (Ann Arbor), is now available online.³ As of September 2012, it contains 'over 800,000 records on all subjects (especially in the humanities and the social sciences) pertaining to East, Southeast and South Asia published worldwide from 1971 to the present day'. The subject headings are 'General & Miscellaneous, Anthropology & Sociology, Arts, Biography, Communication & Media, Economics, Education, Geography, History, Language, Library & Information Sciences, Literature, Philosophy & Religion, Politics & Government, Psychology & Psychiatry, and Science & Technology'.

In this article, instead of investigating what has been written about China, we venture upon a critical assessment of how the country has been studied. For it is one thing to examine the content of the discourses or treatises of sinologists on a special subject matter, but quite another to examine sinology itself, its nature, scope, methods, and relationship to the human and social sciences. **So we are taking a second-order position**, and the reader is requested to keep this in mind.

We are not the first to assess the study of China critically. In 1964, at the Sixteenth Annual Meeting of The Association for Asian Studies, in Washington D.C., Joseph Levenson (Professor of History at the University of California), Mary Wright (Professor of History at Yale University), William Skinner (Professor of Anthropology at Cornell University), Maurice Freedman (Reader in Anthropology and Political Science at the London School of Economics), and Frederick Mote (Professor of Chinese Studies at Princeton University) crossed swords with each other on the issue 'Chinese Studies and the Disciplines'. The extended papers from the gathering and some impromptu comments from the floor by Benjamin Schwartz (Professor of History and Political Science at Harvard University) were published in *The Journal of Asian Studies*, Vol. 23, No. 4 (Aug. 1964),

Enlightenment, Routledge, 1997, 39-53; Lin Xi, 'China through Western Prisms', *Fudan Journal of the Humanities and Social Sciences*, 3:4 (2010), 146-149; and Claudia von Collani, *Von Jesuiten, Kaisern und Kanonen*, WBG, 2012.

² See Ming Wilson and John Caley (eds.), *Europe Studies China*, Hanshan Tang Books, 1995; Kjeld Brødsgaard, 'China Studies in Europe', in David Shambaugh a.o. (eds.), *China-Europe Relations*, Routledge, 2008, 35-64; and the names of the book reviewers in *China Review International*, 1994 ff.

³ See www.asian-studies.org/bassub.htm. The online version of BAS is referred to in the *Internet Guide for Chinese Studies* (www.sino.uni-heidelberg.de/igcs). See also www.ostasien.uzh.ch/sinologie/forschung/chinaandthewest.html.

505-538. The comments of Denis Twitchett (Head of the University of London's Department of Far Eastern Languages and Literatures) and Hsiao Kung-chuan (Professor of the History of Chinese Thought at the University of Washington) were published in the same journal, Vol. 24, No. 1 (Nov. 1964), 109-114. Although the ideas exchanged on that historic occasion are still interesting, the debate was not settled and, remarkably, has never been reopened.

The structure of the paper, being the result of slow and lonely work, is as follows. First an attempt will be made to give a definition of 'science' (*sensu lato*). We will deal with the principles scientists use to work on, and with the differences and similarities between natural and cultural sciences. The treatment of the issue is somewhat extensive because the rest of the article is based on it. Secondly, the question will be raised as to whether sinology can be considered a science. Our criticism will be lodged against studies of China carried out in Europe and the United States.⁴ We leave it to Russian, Indian, Japanese, Australian and other China scholars to decide for themselves whether or not the cap fits. Thirdly, objections that could be raised to our critical remarks will be countered. Fourthly, a constructive response to the challenge launched will be suggested, and a two-pronged way ahead will be indicated. Fifthly, the importance of taking China to be a hypercomplex 'system of systems' (SoS), and, consequently, of engaging in truly interdisciplinary research will be stressed. Finally, a grand research project proposal, compatible with our argument against the conventional Western way of doing China research, will be made. The gist of our argument is that China, indeed every country, has to be seen *sub specie totius* (under the aspect of totality). May the gauntlet we throw down be taken up!

SCIENCE INVESTIGATED

In its most general sense, 'science' could be defined as *a kind of knowledge*, but this definition is not very helpful, for the question then arises: what is knowledge? Leaving it to philosophers of mind, epistemologists and cognitive scientists to solve this vexing, long-standing problem, we wish to point out that 'scientific knowledge' is the antonym of 'unscientific knowledge'. To give an example of the latter, a couple of housewives in London standing around and chatting about price changes in the nearby supermarket *knows* to some degree what is happening in the neighbouring shop, but the small talk of these ladies is a far cry from the coherent/systematic account of the market movements, government budget and balance of international payments in/of Great Britain given by an economist. Similarly, viewers of an 'intelligence quiz' may be awed by the winner's display of knowledge, but no man in his right mind would call such person a scientist. So we take 'science' to mean (the search for) *systematised* knowledge, that is to say, knowledge gained in conformity with generally accepted rules and principles.⁵

The search for systematised knowledge (according to Arthur Fine, a 'shaky game') is an ongoing process. It starts when somebody cannot accept the direct, first-instance reply to a question posed with reference to something striking, brings his mind to bear upon the problem, and decides to

⁴ In America, sinology is sometimes subsumed under philology, a type of scholarship that has a long pedigree but is losing ground to, *inter alia*, linguistics, literary science, archaeology, cultural anthropology, art history, and philosophy.

⁵ The literature on philosophy of science, a subset of the literature on philosophy, is vast. See www.thebsps.org; <http://philpapers.org/browse/general-philosophy-of-science>; www.philsci.org; <http://www2.lse.ac.uk/cpnss>; <https://inpho.cogs.indiana.edu/taxonomy/2218>; www.iep.utm.edu/category/s-l-m/science; www.vub.ac.be/CLWF; www.hopos.org; www.tilburguniversity.edu/research/institutes-and-research-groups/tilps; www.galilean-library.org (resources[philosophy of science]); <http://humweb.ucsc.edu/roundtable>; Dov Gabbay a.o. (eds.), *Handbook of the Philosophy of Science*, Elsevier, 2006 ff.; Stathis Psillos & Martin Curd (eds.), *The Routledge Companion to Philosophy of Science* (forthcoming); the book series *Minnesota Studies in the Philosophy of Science* (1956 ff.), *Boston Studies in the Philosophy of Science* (1963 ff.), *The Western Ontario Series in Philosophy of Science* (1973 ff.), *Poznań Studies in the Philosophy of the Sciences and the Humanities* (1978 ff.) and *The Philosophy of Science in a European Perspective* (2010 ff.); and the journals *Philosophy of Science* (1934 ff.), *Synthese* (1936 ff.), *Journal for General Philosophy of Science* (1970 ff.); *Studies in History and Philosophy of Science* (1970 ff.), *Philosophy of the Social Sciences* (1971 ff.), *International Studies in the Philosophy of Science* (1986 ff.), *Perspectives on Science* (1993 ff.) and *Foundations of Science* (1995 ff.).

collect data. Next, following certain rules and using certain techniques, he will group or segregate the data in categories. If a number can be assigned, and a classification can be made according to the frequency of occurrence or the intensity (the more or less) of a property, the door to the treasure troves of mathematics/statistics will be opened.⁶

Since facts do not speak for themselves, the researcher will form a plausible hypothesis and draw out propositions from it which may explain the data. May explain, for induction and deduction are to be followed by confrontation (to see whether the reasoning stands in light of new facts) and evaluation (to see whether the piece of knowledge acquired can be introduced into the scientific corpus that already exists). Facts are the raw material of the theory trying to explain them. Usually, a theory is a set of statements held to be true. Axiomatisation, a hot topic in mathematical/symbolic logic, is a way of organising them. Axioms, or postulates, are propositions ‘regarded as being established, accepted, or self-evidently true’; they serve as starting points for scientific reasoning.

A theory is an imaginative construction suggested by the outcome of critical and exhaustive investigations; it has been devised to guide the (lab- or field)research. Rather than being a dispensable luxury, or an unnecessary encumbrance to empirical research, a theory provides a sophisticated way of seeing, an important source of conjectures, a handy tool for investigation. There is nothing so practical as a good theory. As the Romans used to say: ‘*Theoria sine praxis est rota sine axis sed praxis sine theoria est caecus in via*’. A theory is an evolving scheme of thoughts, a disciplinary framework according to which the scientist expounds on a topic or covers a field. It is not a doctrine carved in stone, but a conceptual structure, which people may or may not concur with. When the facts that do not square with the theory accumulate, the pressure to revise, or replace, it will be mounting, a process that may result in a ‘paradigm shift’.⁷ Next to observing/experimenting and theorising, computational science is a young and quickly developing discipline that has established itself as the third pillar of modern science. It involves the mathematical modelling, simulation and analysis of phenomena by means of a computer, or a network of computers.⁸

The decline of logical positivism in the 1960s resulted from growing awareness among philosophers of science that classification, even collection, of data does not unqualifiedly precede their explanation. They have been suspicious about ‘statements of facts’; for ‘data’ are not ‘things that are given’ but things made, fabricated, managed, massaged, manipulated, or falsified. *Verum ipsum factum* (the true is the made), Vico, opponent of Descartes and precursor of complexity thinking, aptly wrote. The senses *per se* grasp no facts. Percepts are bound up with concepts, which are vertiginously complex entities. The mind is not passive in receiving sense impressions. ‘The innocent eye is a myth’ (Ernst Gombrich). ‘We cannot have a view of the world that does not reflect our interests and values’ (Hilary Putnam). Perceiving, the intricate mechanism that guides our actions to navigate the world, is tainted by imagination and illusion. Perceptions are erroneous. We are all somehow indoctrinated, if not deceived. ‘*Wahrnehmung ist Falschnehmung*’ (Franz Brentano). Our observations are always ‘theory-laden’. Telescopes, microscopes, sensors and camera’s do not observe. ‘Information extraction’ and ‘data mining’ are not natural events but human activities.⁹

⁶ See www.ams.org/mathscinet/msc/msc2010.html; <http://mathworld.wolfram.com>; www.encyclopediaofmath.org; Kiyoshi Itō (ed.), *Encyclopedic Dictionary of Mathematics*, MIT Press, 1993; and Robert Doran a.o. (eds.), *Encyclopedia of Mathematics and its Applications*, Cambridge University Press, 1989 ff.

⁷ See <http://plato.stanford.edu/entries/science-theory-observation> and <http://plato.stanford.edu/entries/thomas-kuhn>. Theories and models are related; see <http://plato.stanford.edu/entries/models-science>.

⁸ See Leon Horsten & Richard Pettigrew (eds.), *The Continuum Companion to Philosophical Logic*, Continuum Intern’l Publishing Group, 2011, 1-26; and the Birkhäuser book series *Modeling and Simulation in Science, Engineering and Technology*, 1996 ff. For computational methods in the social sciences, see <http://computationalsocialscience.org>, www.uk.sagepub.com/books/Book232371 and <http://jasss.soc.surrey.ac.uk/jasss.html>.

⁹ For facts, see <http://plato.stanford.edu/entries/facts>; and Hilary Putnam, *The Collapse of the Fact/Value Dichotomy*, Harvard University Press, 2002. For concepts, see <http://plato.stanford.edu/entries/concepts>; www.upriss.org.uk/fca; www.historyofconcepts.org; www.concepta-net.org; Reinhart Kosseleck, *Begriffsgeschichten*, Suhrkamp, 2010; and Denis Mareschal a.o. (eds.), *The Making of Human Concepts*, Oxford University Press, 2010. For perception, an ability no scientist can do without but few scientists reflect upon, see http://plato.stanford.edu/entries/perception_problem,

Within the confines of science, there are many constituent sciences, the practitioners of which pay attention to specific facts and put forward specific theories. The expansion of these sciences is astonishing, and the manifold relations between them are even more amazing. Most perplexing, however, is the seemingly unbridgeable gulf between natural and cultural sciences, between physics, chemistry, astronomy, geology and biology on the one side, and the social and human sciences on the other side. This ‘explanatory gap’ has given rise to a long controversy over the question as to how animus/mind evolved out of, or emerged from, atoms/matter.¹⁰

The explanations of natural scientists are essentially deterministic or probabilistic in character, and their approaches are ‘top-down’, starting from the unifying macrostructure, or ‘bottom-up’, beginning with the underlying microstructure. The facts they endeavour to explain are *non-human*. Natural scientists have obtained an impressive body of systematised knowledge of *a*) things that can be directly perceived, *b*) events that happened in the past (*e.g.* the extinction of dinosaurs), *c*) events that have not yet occurred (*e.g.* a future solar eclipse), and *d*) objects that are only perceivable through the use of instruments, or whose existence and properties can only be inferred (*e.g.* quarks).

The explanations of cultural scientists are hermeneutic, humanistic, functionalist or structuralist, and their approaches are reductionistic or holistic (*emergentistisch*). The facts they seek to explain, or understand, are *human*. Whereas social scientists are concerned with social structures and processes (collective behaviour), taking a keen interest in quantities, workers in the human sciences try to understand human actions/activities, representations and interpretations, having a sharp eye for qualities. The former usually proceed positivistically, the latter phenomenologically.¹¹ Cultural

<http://consc.net/mindpapers> (Part 3), www.philpapers.org (search: perception), and www.academia.edu (search: Hans Kuijper). For imagination, the ability to form pictures or ideas in your mind, see <http://plato.stanford.edu/entries/imagination>. For hallucination (perception in the absence of external stimuli), see the latest book of Oliver Sacks, *Hallucinations*, Knopf, 2012. Illusion (*māyā*) has been a central issue in ‘Indian philosophy’. There is no agreement on the nature of information, ‘the blood, the fuel and the vital principle of our world’ (James Gleick). See Peter Janich, *Was ist Information?*, Suhrkamp, 2006; Thomas Cover & Joy Thomas, *Elements of Information Theory*, Wiley, 2006; Pieter Adriaans & Johan van Benthem (eds.), *Handbook of the Philosophy of Information*, Elsevier, 2008; Søren Brier, *Cybersemiotics: Why Information is not Enough*, University of Toronto Press, 2008; Mathieu Tricot, *Le moment cybernétique: La constitution de la notion d’information*, Champ Vallon, 2008; Wolfgang Hofkirchner, *Twenty Questions about a Unified Theory of Information*, Emergent Publications, 2010; Luciano Floridi, *The Philosophy of Information*, OUP, 2011; Thomas Durt, ‘Competing Definitions of Information versus Entropy in Physics’, *Foundations of Science*, 16:4 (2011), 315-318; the special issue of *Metaphilosophy* on the subject (41:3 [April 2010], 247-442); and <http://plato.stanford.edu/entries/information>. For the important difference between events and actions/activities, see <http://plato.stanford.edu/entries/action>.

¹⁰ See Richard Warner & Tadeusz Szubka (eds.), *The Mind-Body Problem*, Blackwell, 1995; Sergio Moravia, *The Enigma of the Mind*, CUP, 1995; Steven Pinker, *The Blank Slate*, Viking, 2002; John Dowling, *The Great Brain Debate*, Princeton University Press, 2004; Tom Ziemke a.o. (eds.), *Body, Language and Mind*, Mouton de Gruyter, 2007; Mario Bunge, *Matter and Mind*, Springer, 2010; Maurice Schouten & Huib de Jong (eds.), *The Matter of the Mind*, Wiley-Blackwell, 2012; Sebastian Seung, *Connectome: How the Brain’s Wiring Makes Us Who We Are*, HMH Trade, 2012; Alexander Moreira-Almeida & Franklin Santana Santos (eds.), *Exploring Frontiers of the Mind-Brain Relationship*, Springer, 2012; and Liz Swan (ed.), *Origins of Mind*, Springer, 2013. See also <http://plato.stanford.edu/entries/dualism>, www.brain-mind-institute.org, www.princeton.edu/~pear and <http://cbc.ucsd.edu>.

¹¹ The research methods of social and human scientists are converging. See Alan Bryman, *Social Research Methods*, OUP, 2008, 587-626; Charles Ragin, *Redesigning Social Inquiry: Fuzzy Sets and Beyond*, University of Chicago Press, 2008, 1-12; Abbas Tashakkori & Charles Teddlie (eds.), *Handbook of Mixed Methods*, Sage, 2010, 1-42; Henri Savall & Véronique Zardat (eds.), *The Qualimetrics Approach*, Information Age Publishing, 2011; Gary Goertz & James Mahoney, *A Tale of Two Cultures: Qualitative and Quantitative Research In the Social Sciences*, Princeton University Press, 2012; the journals *Sociological Methods & Research* (1972 ff.) and *Journal of Mixed Methods Research* (2007 ff.); and the Springer book series *Methodological Prospects in the Social Sciences* (2002 ff.). It should be added that the cultural sciences are becoming increasingly under the spell of the cognitive science (the interdisciplinary study of mind that encompasses philosophy, psychology, linguistics, neuroscience, artificial intelligence, education & learning sciences, sociology and anthropology, and interrelates with biotechnology, nanotechnology, information technology and computer engineering). See <http://plato.stanford.edu/entries/cognitive-science>; <http://cognet.mit.edu>; <http://consc.net/mindpapers> (Part 7); www.gk-ev.de; and http://en.wikipedia.org/wiki/list_of_cognitive_scientists. Eric Margolis a.o. (eds.), *The Oxford Handbook of Philosophy of Cognitive Science*, OUP, 2012; Keith Frankish & William Ramsey (eds.), *The*

scientists have obtained an impressive body of systematised knowledge of a very special kind of objects. Human beings are neither billiard balls hitting each other nor animals only foraging and reproducing. They are highly sentient, motile beings endowed with intellectual, emotional, volitional and spiritual faculties. Man is not only a system of, and among, systems, *i.e.* a physical being, but also a meta-physical being, because he is able to think ‘outside the box’, even to ‘transcend’(go beyond) himself. He is both part of and apart from nature. If his head moves, he may or may not have moved it. He is an active being in a passive universe. Man is an ‘*animal symbolicum*’ (Ernst Cassirer), ‘the beast with red cheeks’(Nietzsche), a ‘cosmic orphan’, a ‘prison breaker’(Loren Eiseley), a ‘*Mängelwesen*’(Arnold Gehlen), ‘the only being who knows he is alone’(Octavio Paz), a ‘non-trivial machine’(Heinz von Foerster), a ‘strange loop’(Douglas Hofstadter), uniquely ‘*fähig zum überlegen*’(Ernst Tugendhat). Sometimes, he has a flash of inspiration, an *Aha-Erlebnis*. His tragedy, however, is that ‘he can conceive of self perfection but cannot achieve it’(Reinhold Niebuhr). Man is ‘*un roseau pensant*’(Blaise Pascal), a thinking thing that, capable of introspection and enthusiasm, has a ‘*nisus towards the life divine*’(Sri Aurobindo) and a ‘hunger for immortality’(Miguel de Unamuno). Clearly, many people feel home in the crowd, follow the fashion, relish the chance to wear a uniform, and pursue ‘*les 3 B du Bonheur*’ (‘*boire, bouffer et baiser*’), but we are all born to be different from paving stones. Each and every one of us has a name, and we are all able to distance ourselves from the powerful engine of causality. Aping/imitating may be in the nature of man; yet he is an evolutionary sideslip. Living in the realm of norms and values, he creates the tight web of meanings called culture.¹² In brief, man is a biosocial/-cultural uniduality.

In spite of their differences, natural and cultural scientists have a thing of importance in common. They want their pieces of knowledge to fall into place. Their aim is to extract structure and invariance from the midst of disarray and turmoil, to see order where chaos seems to reign. In other words, their search is for systematised knowledge. This boils down to having a good command of the configuration of concepts basic to their discipline. Examples are: ‘matter’, ‘energy’ and ‘space-time’ in physics; ‘molecule’, ‘bond’ and ‘reaction’ in chemistry; ‘sediment’, ‘erosion’ and ‘subduction’ in geology; ‘cell’, ‘evolution’ and ‘environment’ in biology; ‘location’, ‘region’ and ‘scale’ in geography; ‘fertility’, ‘mortality’ and ‘migration’ in demography; ‘state’, ‘liberty’ and ‘justice’ in political science; ‘right’, ‘duty’ and ‘crime’ in law; ‘perception’, ‘motivation’ and ‘personality’ in psychology; ‘interaction’, ‘norm’ and ‘institution’ in sociology; ‘kinship’, ‘taboo’ and ‘culture’ in anthropology; ‘excavation’, ‘artifact’ and ‘dating’ in archaeology; ‘scarcity’, ‘investment’ and ‘competition’ in economics; ‘phoneme’, ‘sentence’ and ‘meaning’ in linguistics; ‘genre’, ‘theme’ and ‘style’ in literary science; ‘creativity’, ‘art’ and ‘beauty’ in aesthetics/art history; and ‘holiness’, ‘soul’ and ‘ritual’ in religious studies. Each of these knowledge domains, or mental galaxies, has its own, ever refining network of concepts (ontology).¹³ Overcoming incommensurabilities and arriving at mutual understanding (information integration, interoperability) may be the big challenge; *Einordnung* (subsumption), trying to make things intelligible is unmistakably the common practice.

THE STUDY OF CHINA EVALUATED

Cambridge Handbook of Cognitive Science, CUP, 2012; and the journals *Cognitive Science* (1976 ff.), *Trends in Cognitive Sciences* (1997 ff.) and *Topics in Cognitive Science* (2009 ff.). ‘Cooperative Minds: Social Interaction and Group Dynamics’ will be the theme of the 35th annual meeting of the Cognitive Science Society, in August 2013 (www.cognitivesciencesociety.org).

¹² We take ‘culture’ to mean ‘everything not transmitted by nature’, *i.e.* ‘everything in which the human mind is involved’. Culture is a sign system (www.ut.ee/SOSE/sss), a mental universe, embodied in the ‘world outside’ — in religion, in art, in philosophy, in science, and in *Lebenswelt* (Husserl). See Friedrich Jaeger & Burkhard Liebsch (eds.), *Handbuch der Kulturwissenschaften*, Vol. 1 (*Grundlagen und Schlüsselbegriffe*), J.B. Metzler, 2004; and the special issue of *Culture & Psychology*, 18:3 (2012), on ‘Culture: An Ephemeral Notion of Universal Importance’.

¹³ For ontology, which is ‘an explicit specification of a conceptualisation’ (Tom Gruber), see www.iaoa.org, www.millennium-project.org/millennium/ontology.html, <http://ontolog.cim3.net>, www.jfsowa.com/talks/ontofound.pdf, www.csog.group.cam.ac.uk and www.isko.org > KO Literature (search: ontology).

To mark its 50th anniversary, in April 2003, the Institute of International Relations, a think tank affiliated with the National Chengchi University, in Taipei, published a double issue of its flagship journal *Issues & Studies* on 'The State of the China Studies Field'.¹⁴ The reasons given for this laudable initiative were: a) 'the major jump in both data output within China and access to this data by scholars from outside the PRC', and b) 'the dramatic increase in the number and types of individuals analyzing China'. However, the reader who expects to find a critical assessment of how China has been studied will be disappointed. The (mainly Western) contributors to the special issue beat around the bush and ignore the elephant in the room. None of them is brave enough to ask the key question: of all the Western scholars having occupied themselves with the 'curious land' (David Mungello), who has been in the business of truly analysing *China* in and of itself? We think the sad answer to this perfectly legitimate question is: nobody has! Let us explain.

Sinologists – taken as such (students of *China*) and, we wish to stress, not taken as, e.g., literary scientists engaged in the study of *Chinese* literature, or economists specialising in the *Chinese* economy – share a common interest in China, just as japanologists share a common interest in Japan (and sovietologists shared a common interest in the erstwhile Soviet Union). However, sinology – and the same holds, *mutatis mutandis*, for any other country study – is not defined by the perspective on, or the way of thinking and speaking about, the object of inquiry (China), but by the object itself. China students have no tidy description of their enterprise; they have no 'research programme' (Imre Lakatos). Describing a scientific discourse is not a pointless academic ritual but a prerequisite for a meaningful exchange of ideas. This fact seems to have slipped from memory in the ongoing and confusing China debate. As a result, quite a bit of ambiguity has spread, which in turn has led to murky results. Sinologists are not in search of systematised knowledge of China *qua* China. Consequently, they do not see the structure, the make-up of the country, its tapestry, the intimate connections between its components, the features that determine its look and feel, the whole that differs from the sum of its parts. Nor do they see the change coherence (*Wandlungsstruktur*), the relations between the transformations, or *metamorphoses*, of the compound (the country).

China scholars do not really conceive of the enormous mass of things Chinese as belonging together, as constituting *one* thing. Having an *explanandum* (China), they do not have an *explanans* (sinological theory), a fact they conveniently forget, try hard to gloss over, or do not like to be reminded of. Sinologists have not developed a domain ontology, meaning, they have no command of a body of theoretical concepts that would put them on the same footing as, but differentiate them from, linguists, demographers, geographers, archaeologists, psychologists, sociologists, anthropologists, economists, political scientists, or law students, professionals who increasingly collaborate in international and – more important – interdisciplinary projects. The cosmos, the earth, the biosphere, man, language and society are the objects studied by cosmologists, geologists, biologists, anthropologists, linguists and sociologists respectively. Sinologists, however, are holding their own territory but do not have their own theory. There is no sinological counterpart of John Austin, Franz Boas, Kenneth Burke, Noam Chomsky, Robert Dahl, Ferdinand de Saussure, Émile Durkheim, Ronald Dworkin, Henri Fayol, Northrop Frye, Torsten Hägerstrand, Leonid Kantorovich, John Maynard Keynes, Philip Kotler, Claude Lévi-Strauss, Kurt Lewin, Yuri Lotman, Niklas Luhmann, Rudolf Otto, Erwin Panofsky, Jean Piaget, Adolphe Quételet, John Rawls, Carl Ritter, Herbert Simon, Ludwig von Bertalanffy, Léon Walras, Max Weber or Wilhelm Wundt.

The way of finding out whether sinologists really are what they pretend to be (China experts) is making inquiries about how familiar and comfortable they are with quantitative reasoning, about their nomenclature, about the form of the relationship between their master concepts, about the underlying assumptions of their argument, about the core subject (problématique) of their discipline, or about the central point that assures its unity. Such a point would be a 'black hole', eine grundlegende Aporie, like the relationship between the continuous and the discrete in mathematics,

¹⁴ Vol. 38, No. 4/Vol. 39, No.1, December 2002/March 2003.

between spacetime and matter in physics, between body and mind in psychology, between man and society (*Mitwelt*) in sociology, between positive and moral law in legal theory, between efficiency and justice in economics, or between organisms and their natural environment (*Umwelt*) in ecology.

China students have a keen eye for details but do not let them speak as parts of a whole. They do not have an appropriate architecture for organising the elements presented into an intelligible system. Their writings excel in multitude rather than plenitude, in *multa* instead of *multum* (Pliny). We are provided with an aggregate but not with a whole, with a pile of stones (a few segments at most) but not with a well-founded and well-structured house, *i.e.* with **a model representing China in and of itself**, as a complexity of coupled human and natural systems.¹⁵ The mosaic, the score, the wiring of the country is not given. ‘The one is not shown in the many; the root is not connected with the twigs’ (一不显于多, 本不贯于末). To be sure, the *plures* are insignificant so long as the *unum* is elusive. For ‘it is only against the background of the general that the particular acquires meaning’ (*im Aufbau des Ganzen werden die Züge erst bedeutend*). In order to comprehend something, it is crucial to be able to see the typical/ordinary in the individual/extraordinary (type-token distinction).¹⁶ Not having their own model, and mistaking the cramming of facts for discernment in selecting the important ones, sinologists are, therefore, not entitled to wear the sacred mantle of science, the hallmark of which is theoretically founded systematisation of knowledge.

China students/scholars/experts, taken literally, are undisciplined academics, unable to point out the endogenous and exogenous variables of their research, let alone the (form of the) relations prevailing among them. Their publications, displaying breadth of scholarship rather than depth of insight, contain copious footnotes but a rigorous, sustained and substantive argument is difficult to find. Nobody knows whether their investigations suggested, or were guided by, a sinological theory. Labouring through their (sometimes aggressively marketed) books, one feels like looking at the stars in company of an amateur astronomer, who keeps on pointing at objects in the sky — without a powerful telescope, without any attempt to reduce the incomprehensible multiplicity of the universe to a comprehensible simplicity, to design a theory, that is. To be convinced of this, the reader should open a volume of *T'oung Pao*, ‘the foremost journal on sinology, covering history, literature, art, history of science, in fact, almost anything that concerns China’.

The study of China in the West has a long history, but a coherent scheme of basic concepts concerning China *qua* China has never been developed, the meaning of which can only be: the country, now rapidly moving to centre stage (economically, politically, and – the West fears – militarily), has never been truly analysed comprehensively. It has been variously (and wildly) speculated but never really theorised about. A host of distinguished scholars has amassed facts and figures about (pre)Imperial, Republican and Communist China, but none of them seems to have attempted to reduce the incomprehensible multiplicity of this universe to a comprehensible simplicity. *Monumenta Serica*, another important scholarly journal, founded in 1934 and devoted to China, runs into 58 volumes, with an average of more than 500 pages, but features no article on the foundations/underpinnings of sinology. *Principia Sinologica* is the title of a book yet to be written.

¹⁵ See http://archive.csis.msu.edu/publications/CHANS_science.pdf and www.ecologyandsociety.org. The ‘classic Maya collapse’ dramatically illustrates the complex interactions between man and environment. For model(ing), see Mary Hesse, ‘Models and Analogies’, in W.H. Newton-Smith (ed.), *A Companion to the Philosophy of Science*, Blackwell, 2000, 299-307; Adolf Žižek, *Complex Systems*, Vol. I, Samozaložba, 2006, 14-17; Daniela Bailer-Jones, *Scientific Models in Philosophy of Science*, University of Pittsburgh Press, 2009; Emily Griffiths, ‘What is a model?’, 2010 (online); Margarita Vázquez, ‘Models as Points of View: The Case of Systems Dynamics’, *Foundations of Science*, 16:4 (2011), 383-391; and Mary Morgan, *The World in the Model*, CUP, 2012. There are data-based, theory-based, and computational models (read: approximations). Modelling is the essence of scientific labour. See also note 7 and 8.

¹⁶ The type-token distinction differentiates between a concept (*e.g.* ‘car’) and the objects that are instances of it (*e.g.* ‘this car’). See <http://plato.stanford.edu/entries/types-tokens>; Wolfgang Künne, *Abstrakte Gegenstände*, Klostermann, 2007, ch.5; and Ernest Lepore, *Meaning and Argument*, Wiley-Blackwell, 2009, 26-30.

The study of China belongs to the fuzzy category of ‘area studies’, the numerous practitioners of which seem to believe they can do without a textbook comparable with, *e.g.*, Samuelson & Nordhaus’s *Economics* or Atkinson & Hilgard’s *Introduction to Psychology*. Basically disoriented, they still have to get their act together by organising themselves, as the members of the International Geographical Union (IGU) and the International Union of Anthropological and Ethnographical Sciences (IUAES) did.¹⁷ **There is urgent need for an international journal devoted to the history, theory, methodology and philosophy of area/country studies**, that stranger among the academic disciplines.

COUNTERING LIKELY OBJECTIONS

It may be objected that China is a country *sui generis*, and that notions having their origin in the West are not applicable to it, the more so because the connotations and denotations of the words concerned have changed in the course of time.¹⁸ The central proposition of those who adopt this relativistic attitude is that China must be understood from within. Indigenous terms such as *dao* (道), *de* (德), *fa* (法), *li* (礼, 理), *ming* (命), *qi* (气), *ren* (仁), *shu* (恕), *ti* (体), *xin* (心), *xing* (性), *yi* (义, 易), *yuan* (缘) and *zhi* (智) should be taken as analytical categories, and scholarly research should be presented within their framework. China can never be understood from without, a conviction upheld with a vengeance by the Chinese themselves, particularly those having a strong sense of nationalism. This line of reasoning, perhaps reminiscent of the controversy surrounding Edward Said’s book *Orientalism* (1978), cannot be taken without two qualifications:

1) Bringing out different translations of the same indigenous term, sinologists come under the suspicion of simply not knowing what they are talking about. On this account, the reader should compare Fung Yu-lan, tr. Derk Bodde, *A History of Chinese Philosophy* (Princeton University Press, Vol. II, 1953) with Anne Cheng, *Histoire de la pensée chinoise* (Seuil, 1997), Cheng Chung-ying & Nicholas Bunnin (eds.), *Contemporary Chinese Philosophy* (Blackwell, 2002), Antonio Cua (ed.), *Encyclopedia of Chinese Philosophy* (Routledge, 2003), Karyn Lai, *An Introduction to Chinese Philosophy* (Cambridge University, 2008), and Bo Mou (ed.), *History of Chinese Philosophy* (Routledge, 2009). *Ti* (体), for instance, is confusingly rendered into ‘substance’, ‘body’, ‘model’, ‘style’, ‘principle’, ‘method’, ‘genre’, ‘essence’, ‘form’, ‘trend’, ‘nature’, ‘unity’, ‘noumenon’, ‘vigour’, ‘reality’, ‘constitution’, ‘*constitutivité*’, and ‘bone-structure’. Rendering *ti* into, say, ‘substance’ is to overlook a fundamental difference between the Western and the Chinese way of thinking. Whereas philosophy in the West, from the time of Aristotle (whose universe was geocentric!), has been biased in favour of ‘substance’ (what a thing really *is*, without its accidental properties),¹⁹ Chinese educated in the wisdom of the *Yijing* and the *Daodejing* conceive of everything and everybody as a *becoming* (a *coming* to be) rather than a *being*; they consider each of them as fundamentally *changing over time* instead of *existing at some time*. The Chinese are, therefore, alien to the philosophical concept of ontology and never engaged in a discussion about the

¹⁷ These unions belong to both the International Council for Science, established in 1931 (www.icsu.org), and the International Social Science Council, founded in 1952 (www.worldsocialscience.org).

¹⁸ See Barbara Cassin (ed.), *Vocabulaire Européen des Philosophies*, Le Seuil, 2004; Joachim Ritter a.o. (eds.), *Historisches Wörterbuch der Philosophie*, Schwabe Verlag, 1971-2007; Reinhart Koselleck a.o. (eds.), *Geschichtliche Grundbegriffe*, Klett-Cotta, 1972-1997; Joachim Kurtz & Monica Juneja (eds.), *Global Concepts?* (forthcoming); the journal *Archiv für Begriffsgeschichte* (1955 ff.); and www.jyu.fi/yhtfil/hpsc. See also note 9.

¹⁹ See <http://plato.stanford.edu/entries/substance> and Wolfgang-Rainer Mann, *The Discovery of Things: Aristotle’s Categories and their Context*, Princeton University Press, 2000. See also Gunther Schmidt, *Relational Mathematics*, CUP, 2010; and John Kineman, ‘Relational Science: A Synthesis’, *Axiomathes*, 21:3 (2011), 393-437. Heraclitus, Leibniz (Sinophile!), Hegel, C.S. Peirce, Nietzsche, Bergson, Whitehead, and Berdyaev were *process* philosophers.

distinction between *esse*/existentialism and *essence*/essentialism.²⁰ They take *relationship* to be reality. They emphasise mutuality and relationality, because in their view being is belonging, *esse est inter-esse* (the in-between), spatially, temporally, socially or otherwise; for them, individuals are intersections of relationships. They have difficulty in understanding Plato's dialogue *Phaedrus*, in which Socrates speaks, without fatuous redundancy, of the superlative reality of the forms as 'really real reality'.²¹ The theological doctrines of 'consubstantiality' and 'transubstantiation', over which so much ink and blood were spilt in the West, are beyond the inhabitants of the 'Middle Kingdom' (中国), who fail to see the difference in meaning between *homoousios* (of same substance) and *homoiousios* (of similar substance).

Concepts constitute the building blocks of man's thinking and galvanise him into action; they form, subtly interconnected, the fabric of his life. Consequently, '[a]s long as some important notions and their cognates remain vague, others must share this defect, making human thought and behaviour elusive' (Bertrand Russell). The requirement not to be vague about ideas that have been most potent and persistent in Chinese history is thus paramount.²² Though the argument about 'meaning' continues,²³ with the *Siku Quanshu* (Emperor Qianlong's library, counting about 840,000,000 characters) now electronically accessible and various types of computer software available, a thorough investigation of the interconnected concepts basic to Chinese thinking through the ages has been greatly facilitated.

2) Epistemic relativism, the view that the truth of knowledge-claims is relative to the standards a society/culture uses in evaluating such claims, is an incoherent doctrine, unable to defend itself, because, if it is right, the very notion of rightness is undermined, in which case epistemic relativism itself cannot be right.²⁴ However, if the relativistic stance is untenable, the non-relativist (universalist) also faces a tall problem: how to develop 'a view that includes an acceptable account of rationality and rational justification which is non-dogmatic, rejects any notion of a privileged framework in which knowledge-claims must be couched, and is self-referentially coherent' (Siegel). Universalists tend to be ethnocentric, arrogant and intolerant. We disagree with the relativist, who maintains that culture-bound disciplines are blocking our ability to understand another country, but we also have a different opinion from the universalist, who denies this.

The 'emic-etic debate' among cultural anthropologists revolves around the question whether an account of actions should be given in terms that are meaningful to the actors belonging to the culture under study, or in terms applicable to actions in other cultures as well. Whereas the emic perspective focuses on intrinsic distinctions, only meaningful to the members of a given society, the etic view

²⁰ See www.fordham.edu/halsall/basis/aquinas-esse.asp; Étienne Gilson, *L'être et l'essence*, Vrin, 1948; and Anna-Teresa Tymieniecka, *Essence et existence*, Aubier, 1957. Compare this with <http://plato.stanford.edu/entries/spacetime-bebecome>. For the concept of 'ontology' in information science, see note 13. In November 2010, at a workshop in Amsterdam on 'The History of Logic in China', it became abundantly clear that the Chinese terms for *ontology*, *metaphysics*, *category*, *epistemology*, *logic* and *philosophy* are problematic. For the case of logic, see Joachim Kurtz, *The Discovery of Chinese Logic*, Brill, 2011.

²¹ See Gregory Vlastos, *Socrates: Ironist and Moral Philosopher*, CUP, 1991, 254-255. In 1987, the first complete translation of Martin Heidegger's *Sein und Zeit* (1927) into Chinese (*cunzai yu shijian*), by Wang Qingjie and Chen Jiaying, was published in Beijing.

²² See Britt Glatzeder a.o. (eds), *Towards a Theory of Thinking: Building Blocks for a Conceptual Framework*, Springer, 2010 (Part II). For vagueness, see <http://plato.stanford.edu/entries/vagueness>; Giuseppina Ronzitti (ed.), *Vagueness: A Guide*, Springer, 2011; and Otávio Bueno & Mark Colyvan, 'Just What is Vagueness?', 2012 (online). How the concepts of 'vagueness', 'fuzziness' (Lotfi Zadeh), 'roughness' (Zdzisław Pawlak) and 'greyness' (Deng Julong) differ from each other, and relate to the older concept of 'probability' (Girolamo Cardano, Pierre de Fermat, Blaise Pascal, Christiaan Huygens, Jakob Bernoulli, Andrey Kolmogorov), is a controversial issue. See also note 9.

²³ Meaning has long been a serious bone of contention in linguistics (semantics), philosophy of language, semiotics, literary theory, art history (iconography), psychology, sociology, hermeneutics, phenomenology, cultural anthropology, 'cultural studies' (*Kulturwissenschaften*), communication studies, and information science.

²⁴ See Harvey Siegel, *Relativism Refuted*, Reidel, 1987, 3-31. There are various kinds of relativism. See Maria Baghramian, *Relativism*, Routledge, 2004; and Steven Hales (ed.), *A Companion to Relativism*, Wiley-Blackwell, 2011.

relies upon the extrinsic concepts and categories of scientific observers. This contradiction seems to be mistaken, for the points of view can be reconciled. A sensible *combination* of the emic and the etic lens yields a binocular vision, making depth perception possible.²⁵

The fact that the great bulk of the systematised knowledge of social and human scientists is based on the investigation of Western data only does not imply the impossibility of cross-cultural dialogue, being a process in which the parties gradually *learn* to understand each other. A dialogue is not a debate. The former is geared to reaching an agreement (consensus), the latter to scoring a victory (meaning: somebody else's defeat!); the one aims at inclusion, the other at exclusion. In an 'authentic dialogue' (Gadamer) the participants do not talk at cross-purposes but actively listen to each other; rather than being bent on proving themselves right, they are eager to gain insight.²⁶ A dialogue will inevitably lead to comparing, to the placing together and examining of two things in order to discover similarities and differences, an activity that plays a crucial role in every scientific discipline. And this comparing (which should not be confused with equating) may result in a change of mind, a mental leap, a conceptual re-configuration.²⁷

It may also be objected that after the Second World War sinology split into specialisms, making the jacks-of-all-trades-but-masters-of-none with regard to China a dwindling species. We think this assertion is to be taken *cum grano salis*. The change from 'China study' to 'Chinese studies' (an ambiguous phrase) has not improved the situation. On close inspection, many experts focusing on one or another aspect of China turn out to be amateurs only — sometimes gifted amateurs but non-professionals nonetheless.

What is necessary here is to 'rectify names' (*zhengming*). For Confucius said: 'If names are incorrect, language is not in accordance with the truth of things, and if language is not in accordance with the truth of things, affairs cannot be carried on to success' (*Lunyu*, Book XIII, Chapter 3). 'Professor of Chinese' doesn't make sense (not any more than 'professor of life', 'professor of man', or 'professor of society' does), unless this appellation of distinction is shorthand for 'professor of linguistics with principal research interest in the *Chinese* language'. In much the same vein, we doubt whether every 'professor of Chinese literature' can be safely assumed to hold an academic degree in literary science. 'Lecturer/reader in Chinese economics' will not do either, for *Chinese* economics is a nonexistent subject matter. To be sure, Chinese economists lecturing on the economy of, or the application of economic theory in, China *do* exist. There are Chinese, Japanese, American, Indian, Arabic, Russian, European and Australian logicians, mathematicians, scientists or philosophers (some of them being towering figures), but there cannot, in reality, be such things as Chinese, Japanese, American, Indian, Arabic, Russian, European and Australian logic, mathematics, science or philosophy, a major point Cheng Chung-ying, founder of the International Society for Chinese Philosophy and editor-in-chief of *Journal of Chinese Philosophy*, seems to overlook.²⁸

²⁵ See Thomas Headland a.o. (eds.), *Emics and Etics: The Insider/Outsider Debate*, Sage, 1990; and Shinobu Kitayama & Doc Cohen (eds.), *Handbook of Cultural Psychology*, Guilford Press, 2010, 65-66.

²⁶ See <http://plato.stanford.edu/entries/logic-dialogical>; www.infed.org/biblio/b-dialog.htm; www.iada-web.org; www.benjamins.com/catalog/ds; Marcelo Dascal (ed.), *Dialogue*, John Benjamins, 1985; Tullio Maranhão, *The Interpretation of Dialogue*, University of Chicago Press, 1990; Daniel Yankelovich, *The Magic of Dialogue*, Simon & Schuster, 1999; Peter Kühnlein a.o. (eds.), *Perspectives on Dialogue in the New Millennium*, John Benjamins, 2003; Dmitri Nikulin, *On Dialogue*, Lexington, 2006; Toyooki Nishida (ed.), *Conversational Informatics: An Engineering Approach*, Wiley, 2007; and Hans Köchler, 'The Philosophy and Politics of Dialogue', 2009 (online).

²⁷ Comparing cultures is the staple of cross-cultural psychologists. See Eric Shiraev & David Levy, *Cross-Cultural Psychology*, Allyn & Bacon, 2010, 1-26; David Matsumoto & Fons van de Vijver (eds.), *Cross-Cultural Research Methods in Psychology*, CUP, 2011, 75-100; John Berry a.o., *Cross-Cultural Psychology*, CUP, 2011, 33-220; and Kenneth Keith (ed.), *The Encyclopedia of Cross-Cultural Psychology*, Wiley-Blackwell (forthcoming). Cross-cultural psychology is a subset of cross-cultural research. See www.sccr.org and note 12.

²⁸ The question as to whether 'Chinese philosophy' really exists is treated in the journal *Extrême Orient – Extrême Occident*, Nr. 27, 2005. In our view, there is neither 'Eastern/oriental philosophy' nor 'Western/occidental philosophy'; there is only (perennial) philosophy. See note 20.

'History' is a treacherously ambiguous term. The same word is used for *a*) the series of events that (have) happened²⁹ and *b*) the scientific account of, or story about, these happenings (the historian's choice of perspective being dependent on his/her axiological assumptions as well as the position in time he/she prefers to take). 'History(E)' and 'history(A)' mark the distinction, with E and A referring to what may be regarded as first and second level of reality. Accordingly, 'professor of Chinese history' doesn't make sense, unless this honourable title stands for 'professor of history(A) whose attention is mainly devoted to the *Chinese* history(E), or to the views of *Chinese* historians'. Era and area studies are comparable, for '[t]he past is a foreign country' (Leslie Hartley). So the thesis put forward in this paper should also concern some historians. The World History Association divides the world into regions and considers anthropology, archaeology, climatology, demography, economics, epigraphy, geography, iconography, linguistics, media studies, numismatics, philosophy, political science, sociology, technology, and textual criticism to be disciplines auxiliary to world history. If that is the case, let the 'professor of Chinese history' who can be taken seriously rise!³⁰

Many so-called China experts, acknowledging the impossibility of being a scientific all-rounder, have the bad habit of putting on the hat of a scientist without filling his shoes, that is to say, the habit of delivering lectures on the Chinese language, literature, political system, legal system, military system, educational system, health care system, economy, trade and industry, society, art(s), religion(s) or environment without a degree in linguistics, literary science, political science (or public administration), law, military science, educational science, medicine, economics, business administration, sociology, art history, science of religion or ecology respectively. Only a few experts have taken the trouble to obtain a degree before ascending the pulpit. However, lecturing on a subject that lies within their purview, they often stray into forbidden domains — without duly notifying their audience.

A mature science consists of several subdisciplines. The workers in these special vineyards occupy themselves with a part without losing sight of the whole. Biology, for example, deals with living things at different levels in the biosphere. Its growth was triggered by a division of labour. Zoologists and ethologists are interested in animals, botanists in plants, mycologists in fungi, phycologists in algae, and microbiologists in bacteria and viruses. Here the ramification does not stop. Mammalogists are concerned with mammals, entomologists with insects, carcinologists with crustaceans, arachnologists with spiders and their relatives, ornithologists with birds, ichthyologists with fishes, malacologists with molluscs, and herpetologists with reptiles and amphibians. The point is that, despite their apparent differences, all the divisions and subdivisions are interrelated; mother, daughters and granddaughters are akin. The splitting of biology into specialisms has been guided by the same principles. There may be differences in dialect, the *language* spoken is the language of biologists. After the Second World War, sinology also started to diversify. By any stretch of the imagination, though, we cannot see how the subgroups thereof form a family; there is no intellectual kinship, no scientific lineage, no academic genealogy. So-called China experts have nothing in common, in a distinctively scientific manner, that is. They have no command of a characteristic 'network of basic notions' (*Geflecht von Grundbegriffen*). There is an endless stream of books and articles 'about China', but there is no real *sinological* debate and there are no schools of *sinological* thought (comparable to, say, schools of thought in sociology, economics, or psychology), simply because there is no *sinological* language, a remarkable fact that seems to have gone unnoticed.

²⁹ See www.philosophie-en-ligne.com/page98.htm and Hayden White, 'The Historical Event', *Differences*, 19:2 (2008), 9-34. See also end of note 9.

³⁰ For the 'professionalisation' of history (A), see Georg Iggers, *Historiography in the Twentieth Century*, Wesleyan University Press, 1997 (Part I and II); Lloyd Kramer & Sarah Maza (eds.), *A Companion to Western Historical Thought*, Blackwell, 2006, 225-389; Georg Iggers a.o., *A Global History of Modern Historiography*, Pearson, 2008 (Part III); Aviezer Tucker (ed.), *A Companion to the Philosophy of History and Historiography*, Wiley-Blackwell, 2009 (Introduction); Alison Stone (ed.), *The Edinburgh Critical History of Nineteenth-Century Philosophy*, Edinburgh University Press, 2011 (chapter 8); and <http://www.hps.cam.ac.uk/research/hs.html>.

The claimed post-war ‘split of sinology into specialisms’ is a case of deceptive appearances. Books giving a general picture of China keep on rolling from the press, books not written by reporters, whose unscientific *modus operandi* may be excusable, but by tenured professors. Whoever believes that the all-rounders in respect of China are dead and gone is grossly mistaken. The *touche-à-tout sans profondeur* is still around; the jacks-of-all-trades-but-masters-of-none (or only-one) are still alive and kicking. Some of these all-purpose China scholars do not even shrink from predicting the country’s future, clearly unaware of the quiet nonlinear-science revolution of the 1970s, that emphasised the importance/certainty of uncertainty and led to a redefinition of causality.³¹ If pretending to be, or making no objection to be introduced as, an expert on some aspect of China, without a degree in the discipline concerned, is reprehensible, downright unforgivable is it to make no bones about changing bonnets and to masquerade as connoisseur of China *tout court*. Those who are guilty of doing so corroborate Alexander Pope’s statement: ‘Fools rush in where angels fear to tread’.

THE WAY AHEAD

What is to be done? Advising ‘China experts’ to go home and to look for another job is certainly not what we are thinking of. For one shall not throw the baby out with the bath water. China students are (we hope) fluent in classical and modern Chinese. So, first and foremost, let them cultivate their talent! There are plenty of books eagerly awaiting translation.

Over the last 150 years or so, numerous books belonging to any of the four categories into which Chinese bibliographers traditionally put their sources, viz ‘classics’ (*jing*), ‘history’ (*shi*), ‘philosophy’ (*zi*), and ‘literature’ (*ji*), have been translated into a European language. However, not all the authors who have participated in the great Chinese conversation about the basic principle of order (in nature and society) have found a translator of their work, the assiduity and diligence of Édouard Biot, Édouard Chavannes, Séraphin Couvreur, Robert des Rotours, Homer Dubs, Jan Duyvendak, Alfred Forke, Esson Gale, Olaf Graf, David Hawkes, James Hightower, Wilt Idema, Wallace Johnson, David Knechtges, John Knoblock, Franz Kuhn, James Legge, Göran Malmqvist, Georges Margouliès, Richard Mather, William Nienhauser, Max Perleberg, Rainer Schwarz, Nancy Lee Swann, Erwin von Zach, Arthur Waley, Burton Watson, Stephen West, Richard Wilhelm, Martin Woesler and other translators notwithstanding.

³¹ For nonlinearity, see <http://spkurdyumov.narod.ru/NelDin/NelDin.htm>; Alwyn Scott, *The Nonlinear Universe*, Springer, 2007; Zensho Yoshida, *Nonlinear Science: The Challenge of Complex Systems*, Springer, 2010; Raoul Huys & Viktor Jirsa (eds.), *Nonlinear Dynamics in Human Behavior*, Springer, 2011; Stefano Zambelli & Donald George (eds.), *Nonlinearity, Complexity and Randomness in Economics*, Wiley-Blackwell, 2012; and Yoshitsugu Oono, *The Nonlinear World: Conceptual Analysis and Phenomenology*, Springer (forthcoming). For uncertainty, see Morris Kline, *The Loss of Certainty*, OUP, 1982; Daniel Kahneman a.o. (eds.), *Judgment under Uncertainty*, CUP, 1982; Tony Rothman & George Sudarshan, *Doubt and Certainty*, Basic Books, 1998; F. David Peat, *From Certainty to Uncertainty*, Joseph Henry Press, 2002; Marcus Giaquinto, *The Search for Certainty*, OUP, 2002; Danièle Moyal-Sharrock (ed.), *The Third Wittgenstein: The Post-Investigations Works*, Ashgate, 2004; Reuben McDaniel & Dean Driebe (eds.), *Uncertainty and Surprise in Complex Systems*, Springer, 2005; Kurt Marti a.o. (eds.), *Coping with Uncertainty*, Springer, 2006; George Klir, *Uncertainty and Information*, Wiley, 2006; David Lindley, *Uncertainty: Einstein, Heisenberg, Bohr, and the Struggle for the Soul of Science*, Anchor, 2008; Gabriele Bammer & Mike Smithson, *Uncertainty and Risk*, Earthscan, 2008; Krzysztof Burdzy, *The Search for Certainty: On the Clash of Science and Philosophy of Probability*, World Scientific, 2009; William Byers, *The Blind Spot: Science and the Crisis of Uncertainty*, Princeton University Press, 2011; and Liu Baoding, *Uncertainty Theory*, 2012 (online). For causality, see <http://plato.stanford.edu/entries/aristotle-causality>; Wolfgang Spohn, *Causation, Coherence and Concepts*, Springer, 2009, ch. 2-5; Judea Pearl, *Causality*, CUP, 2009; Pierfrancesco Basile, *Leibniz, Whitehead, and the Metaphysics of Causation*, Palgrave Macmillan, 2009, ch. 4-5; Helen Beebe a.o. (eds.), *The Oxford Handbook of Causation*, OUP, 2009; Steven Sloman, *Causal Models*, OUP, 2009; Stephen Turner (ed.), *Causality*, Sage, 2010; Mario Bunge, *Causality and Modern Science*, Dover, 2011; Phyllis McKay Illari a.o. (eds.), *Causality in the Sciences*, OUP, 2011; John Losee, *Theories of Causality: From Antiquity to the Present*, Transaction Publishers, 2011; C.G. Jung, *Synchronizität als ein Prinzip akausaler Zusammenhänge*, Rascher Verlag, 1952; and David Peat, *Synchronicity: The Bridge between Matter and Mind*, Bantam, 1987.

Remarkably, there is no translation of the Great Books of the Chinese World comparable to the *Great Books of the Western World*. The latter, published by Encyclopædia Britannica, Inc., is a set of 60 volumes containing 517 works (by 130 authors) in mathematics, physical sciences, life sciences, social sciences, history, philosophy, and imaginative literature. Three criteria governed the selection (by Robert Hutchins and Mortimer Adler) of these books, which made their appearance in a time span covering more than 25 centuries (from Homer's *Iliad* and *Odyssey* to Claude Lévi-Strauss' *Structural Anthropology*). They were chosen by virtue of their dealing with issues, problems or facets of human life that are of major concern today as well as at the time in which they were written. They are worth reading carefully many times or studying over and over again. And they have very broad and general significance; their authors have something of importance to say about a large number of great ideas making up the abstract and complex infrastructure of Western thought.³²

Only a fraction of the rich Chinese literature has found its way to Gallimard's world-famous *Bibliothèque de la Pléiade*. The integral translation of the *Zhengshi* [Dynastic Histories], the importance of which can hardly be exaggerated, is the dream of many historians. Sima Guang's *Zishi Tongjian* [Comprehensive Mirror for Aid in Government]; the *Shitong* [Ten Encyclopedic Histories of Institutions]; the monumental *Gujin Tushu Jicheng* [Complete Collection of Illustrations and Writings from the Earliest to Current Times], which – in the 18th century – attempted to embody the whole of Chinese cultural history; the extant collections of *Zhaoling Zouyi* [Edicts and Memorials]; the treasure troves known as *Daozang* [Daoist Canon] and *Dazangjing* [Chinese Buddhist Canon]; the invaluable Dunhuang manuscripts; and thousands of *Fangzhi* [Local Gazetteers] are waiting to be (further) opened up by sinologists for scientists unable to read Chinese. Furthermore, a new (philosophically as well as historically annotated) translation of the *Zhuzi Jicheng* [Complete Collection of the Works of Ancient Philosophers] would be most welcome, and high on the list of modern and contemporary philosophical books to be translated are:

- Jin Yuelin, *Luoji* [Logic], 1935;
- Cai Yuanpei, *Zhongguo Lunlixue Shi* [A History of Chinese Ethics], 1937;
- Feng Youlan, *Zhen Yuan Liu Shu* [Six Books on Purity and Primacy], 1939-1946;
- Jin Yuelin, *Lun Dao* [On Dao], 1940;
- Zhang Dongsun, *Zhishi yu Wenhua* [Knowledge and Culture], 1946;
- Liang Shuming, *Zhongguo Wenhua Yaoyi* [The Essence of Chinese Culture], 1949;
- Hou Wailu, *Zhongguo Sixiang Tongshi* [Comprehensive History of Chinese Thinking], 1957-1963;
- Xiong Shili, *Tiyonglun* [On Ti and Yong], 1958;
- Xiong Shili, *Mingxin pian* [Illuminating the Mind], 1959;
- Hu Jichuang, *Zhongguo Jingji Sixiang Shi* [A History of Economic Thinking in China], 1962-1981;
- Chen Guofu, *Daozang Yuanliu Kao* [On the Origin and Development of the Daoist Canon], 1963;
- Xu Fuguan, *Zhongguo Yishu Jingshen* [The Aesthetic Spirit of China], 1966;
- Yin Haiguang, *Zhongguo Wenhua de Zhanwang* [China's Cultural Future], 1966;
- Mou Zongsan, *Xinti yu Xingti* [Mind and Nature], 1968;
- Tang Junyi, *Shengming Cunzai yu Xinling Jingjie* [Human Existence and Spiritual Horizon], 1977;
- Li Zehou, *Zhongguo Jindai Sixiang Shilun* [Historical Treatise on Modern Chinese Thought], 1979;
- Lou Yulie, *Wang Bi Ji Jiaoshi* [A Critical Edition of Wang Bi's Works], 1980;
- Jin Yuelin, *Zhishilun* [Theory of Knowledge], 1983;
- Liang Shuming, *Renxin yu Rensheng* [Human Heart and Human Life], 1984;
- Mou Zongsan, *Yuanshanlun* [A Treatise on the Highest Good], 1985;
- Li Zehou, *Zhongguo Gudai Sixiang Shilun* [Historical Treatise on Ancient Chinese Thought], 1985;
- Li Zehou, *Zhongguo Xiandai Sixiang Shilun* [Historical Treatise on Contemporary Chinese Thought], 1987;

³² See Philip Goetz (ed.), *The Great Conversation: A Reader's Guide to the Great Books of the Western World*, Chicago: Encyclopædia Britannica, Inc., 1994, 25-26.

- Jin Wulun, *Wuzhi Kefenxing Xinlun* [A New Theory on the Divisibility of Matter], 1988;
- He Lin, *Wenhua yu Rensheng* [Culture and Human Life], 1988;
- Zhu Bokun, *Yixue Zhexue Shi* [Philosophical History of Yi(jing) Studies], 1988;³³
- Chen Lai, *Zhu Xi Zhexue Yanjiu* [A Study of Zhu Xi's Philosophy], 1988;
- Tang Liqun, *Zhouyi yu Huaidelhai zhi Jian* [Between the *Yijing* and Whitehead], 1989;
- Li Kuangwu, *Zhongguo Luoji Shi* [A History of Chinese Logic], 1989;
- Hu Weixi, *Chuantong yu Renwen* [Tradition and Culture], 1992;
- Feng Qi, *Zhihui San Lun* [Three Essays on Wisdom], 1994;
- Zhang Liwen, *Zhongguo Zhexue Fanchou Jingxuan Congshu* [Compendium of Categories in Chinese Philosophy], 1994;
- Mou Zongsan, *Renwen Jiangxilu* [Lectures on Culture], 1996;
- Chen Shaofeng, *Zhongguo Lunlixue Shi* [A History of Chinese Ethics], 1997;
- Ge Zhaoguang, *Zhongguo Sixiang Shi* [A History of Chinese Thinking], 1998-2000;
- Chen Lai, *YouWu zhi Jing* [The Realms of Being and Nonbeing], 2000;
- Qiao Qingju, *Yantielun Quanwen Zhushiben* [The Integral Text of 'Discourses on Salt and Iron' Explained], 2000;
- Zhang Jialong, *Zhongguo Luoji Sixiang Shi* [A History of Logical Thinking in China], 2004;
- Li Zehou, *Shiyong Lixing yu Legan Wenhua* [Pragmatic Reason and the Culture of Contentment], 2005;
- Sun Zhongyuan, *Zhongguo Luoji Yanjiu* [Studies on Chinese Logic], 2006;
- Zhang Liwen, *Hehexue* [The Philosophy of Harmony], 2006.

Translating, that humble, yet ever so important activity, is the strength, doing scientific research the weakness of China students not graduated in any of the social or human sciences.³⁴ They should, therefore, concentrate on the former and link up with scientists for the latter. If they desire to embark on the study of a subject related to China, we would counsel them not to run the risk of being shipwrecked because of shortage of seamanship. Instead, they should look around for scientists to set up a joint venture. In this way, the party lacking disciplinary grounding has the right analytical tools at his disposal, whereas the party unable to read Chinese has access to primary sources. For there is no more excuse for sinologists writing incompetently on technical subjects than for scientists working incompetently upon texts. It would be wrong, however, to conclude that partial views add up to a *Totalbild*, to a complete and coherent picture of the structured and articulated whole of China. What we have got when the various joint ventures finally come out with their product is a patchwork rather than a tapestry, a juxtaposition rather than a composition, a pile of bricks rather than a house, an 'aggregate' (*Gesamtheit*) rather than a 'whole' (*Ganzheit*).

CHINA IS A COMPLEX SYSTEM OF COMPLEX SYSTEMS

³³ Although not a philosophical book *per se*, *Zhongguo Yixue Dazidian* [Great Chinese Dictionary of Yi(jing) Studies], edited by Cai Shangsi and published, in 2008, by Shanghai Ancient Books, should be translated, particularly Vol. I, 1-82 (summary) and 507-717 (history). The book shows how modern ancient Chinese thinkers, going beyond the Aristotelian 'square of opposition', actually were! Joseph Adler, Luis Andrade, Thomas Cleary, Russell Cottrell, Jesse Fleming, Edward Hacker, Bradford Hatcher, Peter Herschok, Richard Kunst, Richard Lynn, Steve Marshall, Harm Mesker, Steve Moore, Bent Nielsen, Rudolf Ritsema, Andreas Schöter, Edward Shaughnessy, Kidder Smith, and Richard Smith are 'modern *Yijing* scholars' failing to demonstrate that they are conversant with the philosophical/scientific literature on chance and change. See www.hermetica.info/YixueBib.htm, <http://plato.stanford.edu/entries/chance-randomness> and <http://plato.stanford.edu/entries/change>.

³⁴ Fluency in a foreign language, however impressive, is only a skill. It does not qualify the speaker/translator for making *scientific* statements on the language concerned; doing so is the prerogative of the linguist who has focused his/her mind on the language. For the art/skill of translating, see www.benjamins.com/online/tsb; <https://www.stjerome.co.uk>; www.atanet.org; Piotr Kuhiwczak & Karin Littau, *A Companion to Translation Studies*, Multilingual Matters, 2007; and Mona Baker & Gabriela Saldanha (eds.), *Encyclopedia of Translation Studies*, Routledge, 2008.

Each country is a territory-bound, history-moulded, multi-minded, at one time open, at another time closed system of inextricably intertwined physical, chemical, biological and social systems. It has a ‘face’ (*Gestalt*), a style, a character, a distinctive ‘sound’ or ‘beat’, a particular ‘flavour’ (*rasa*), a cultural heritage expressing its soul. Constantly changing, sometimes revolutionarily, it has properties none of its constituent subsystems has (much in the same way as the nature of water is irreducible to the attributes of hydrogen and oxygen). Being a superorganism, a hierarchically ordered, non-fragmentable *holon*, a complex system consisting of complex systems, and an evolving compound, or composite, a country cannot be understood by studying its parts. It can only be understood across the disciplines, that is to say, inter/transdisciplinarily. Like the ant that cannot see the pattern of the carpet, a country student can never grasp the whole picture, not only because it is hard enough to be expert in one scientific domain and enormously difficult to learn two (let alone more than two) disciplines, but also because the whole of the country is something else (not: more!) than the sum total of its parts. Composition goes beyond juxtaposition. So we urgently need genuine scientific collaboration. The body can only be dissected at the price of cutting connections. Breaking a country up into morsels for scientists from different departments to chew on (the *multidisciplinary* approach) would amount to destroying a ‘system’ (σύστημα, *constitution*) in order to *comprehend* it. The crux of the matter is that the parts and the whole are intimately interconnected; they are inseparable from, and non-subordinatable to, each other. Quite simply: it takes two to tango.³⁵

Countries, big or small, have to be thrown into a fresh perspective. Concepts borrowed from the burgeoning science of complex systems must be applied to them. Studies have been done on the complexity of companies, cities, economies, politics, societies and histories, even on the global complexity (complexity being defined as ‘elements that react to the pattern they together create’). It is time to consider the possibility of studying the complexity of *countries*. At this critical juncture, we can no longer afford to think and behave as if the intricately patterned and dynamically evolving economic, financial, political, legal, military, social, cultural, educational, religious, ecological, and foreign-relations systems of a nation-state are not interconnected, not corresponding to, interfacing with, or mapping onto each other. It is time to imagine China through the miraculous language of mathematics, ‘the cosmic eye of humanity’ (Eberhard Zeidler); time to look for links and loops, for homologies and isomorphies, for correspondences and correlations, for analogies and similarities, for the invariance/constant in the variety/change; time to elucidate the pathways underlying China’s functioning; time to investigate how the whole of the country, being a hugely complex ‘system of

³⁵ Here, one cannot but think of the undichotomisable *taijitu* (☯), the interaction, uncertainty, complementarity, nonlinearity, infinity and dynamic symmetry suggesting *yin-yang* diagram that archetypically symbolises the Chinese world-view and prominently featured in the coat-of-arms of Niels Bohr, albeit in colours that are not ‘complementa’! See Wen-Ran Zhang, ‘Beyond Spacetime Geometry – The Death of Philosophy and Its Quantum Reincarnation’, 2012 (online). Mereology is the study of parthood relations. Combined with topology, the study of relations and connectivity taken purely, it forms mereotopology, which is a major tool for ‘ontological analysis’. See <http://iaoa.org/isc2012>; <http://plato.stanford.edu/entries/mereology>; and Hans Burkhardt a.o. (eds.), *Handbook of Mereology*, Philosophia Verlag, 2012. For uncertainty and nonlinearity, see note 31. For symmetry (‘Beauty is the making one of opposites’), see <http://www.acadeuro.org/index.php?id=168>; <http://symmetry.hu/definition.html>; www.mdpi.com/journal/symmetry; David Mumford a.o., *Indra’s Pearls: The Vision of Felix Klein*, CUP, 2002 (ch. 1); Mario Livio, *The Equation That Couldn’t Be Solved*, Simon & Schuster, 2006; Mark Ronan, *Symmetry and the Monster*, OUP, 2006; Ian Stewart, *Why Beauty is Truth: A History of Symmetry*, Basic Books, 2007; Marcus Du Sautoy, *Symmetry: A Journey Into the Patterns of Nature*, HarperCollins, 2008; John Conway a.o., *The Symmetries of Things*, A K Peters, 2008; Joseph Rosen, *Symmetry Rules*, Springer, 2008; Avner Ash & Robert Gross, *Fearless Symmetry: Exposing the Hidden Patterns of Numbers*, Princeton UP, 2008; Magdolna & István Hargittai, *Symmetry Through the Eyes of a Chemist*, Springer, 2009; and Leon Lederman & Christopher Hill, *Quantum Physics for Poets*, Prometheus, 2011, 249-251. For supersymmetry (SUSY), see Roger Penrose, *The Road to Reality*, BCA, 2004, 869-933, and <http://arxiv.org/pdf/hep-ph/9709356.pdf>; for the related search for the Higgs boson (the agent of particle interactions!), see www.cern.ch and – just for fun – <http://vimeo.com/41038445>.

systems' (SoS), is held together and differs from another country, like a Rembrandt from a Picasso, or a piece of popular from a piece of (traditional) folk music.³⁶

Basically, complex systems scientists are interested exclusively in properties common to all complex systems, leaving it to non-formal scientists, in the fields of natural or cultural research, to study the differences between these systems (the dream of Ludwig von Bertalanffy). Practically, however, they follow one of two approaches. The first method is the building and study of mathematical models that only contain the most important properties of a real system. The tools used in such studies include, but are not limited to, dynamical systems theory, game theory, and information theory. The second approach is building a more comprehensive and realistic model, usually in the form of a computer simulation, representing the interacting parts/agents of a complex system, and then watching and studying the emergent behaviour that appears. The power of computer simulation, aka computational modeling, has far exceeded anything possible using traditional paper-and-pencil mathematical modeling.³⁷

Mark Newman, who is associated with the Center for the Study of Complex Systems, at the University of Michigan, concludes a recent survey as follows:

‘Complex systems [science] is a broad field, encompassing a wide range of methods and having an equally wide range of applications. The resources reviewed here cover only a fraction of this rich and active field of study. For the interested reader there is an abundance of further resources to be explored when those in this article are exhausted, and for the scientist intrigued by the questions raised there are ample opportunities to contribute. Science has only just begun to tackle the questions raised by the study of complex systems and the areas of our ignorance far outnumber the areas of our expertise. For the scientist looking for profound and important questions to work on, [the study of] complex systems offers a wealth of possibilities.’³⁸

The science of complex systems is an early 1980s outgrowth of *a*) the science of systems (the study of the general properties of systems), *b*) cybernetics (the study of control and communication in systems), *c*) system dynamics (the study of the behaviour of systems over time), *d*) synergetics (the study of the fundamental principles of pattern formation in systems), *e*) nonequilibrium

³⁶ See <http://comdig.unam.mx>, www.isi.it, <http://emergentpublications.com>, www.santafe.edu, <http://ecco.vub.ac.be>, http://sites.google.com/site/unifiedcomplexity/Andrei_Kirilyuk, www.necsi.edu, www.cssociety.eu, www.iscpif.fr, www.complexsystems.net.au, www.cas-group.net, www.complexity.ecs.soton.ac.uk, www.igi-global.com (search: complexity), www.implexus.org, www.academia.edu/People/Complex_Systems_Science, www.cenec.ens.fr, www.complex-systems.com, www.mpipks-dresden.mpg.de; www.complexitynet.eu and www.homeokinetics.org. Robert Meyers (ed.), *Encyclopedia of Complexity and Systems Science* (Springer, 2009) provides an ‘overview’, counting 10.450(!) pages, but bypasses the six-volume *opus magnum* of the greatest French complexity-thinker, Edgar Morin: *La Méthode*, Le Seuil, 1977-2004. The Springer book series *Understanding Complex Systems* focuses on the applications of complexity science. See also the series *Complex Adaptive Systems* (MIT Press); *Studies in Complexity* (Princeton University Press); *Complexity in Ecological Systems* (Columbia University Press); *Santa Fe Institute Studies on the Sciences of Complexity* (OUP); *Primers in Complex Systems* (SFI and Princeton University Press); and *Managing the Complex* (Information Age Publishing); Melanie Mitchell, *Complexity: A Guided Tour*, OUP, 2009; J. Barkley Rosser Jr. (ed.), *Handbook of Research on Complexity*, Edward Elgar, 2010; Vinod Wadhawan, *Complexity Science*, Lambert Academic Publishing, 2010; Paul Cilliers & Rika Preiser (eds.), *Complexity, Difference and Identity*, Springer, 2010; Peter Belohlavek, *Complexity Science*, Blue Eagle Group, 2011; Patrick Beutement & Christine Broenner, *Complexity Demystified*, Triarchy Press, 2011; Cliff Hooker (ed.), *Philosophy of Complex Systems*, Elsevier, 2011; Allen Downey, *Think Complexity*, O’Reilly, 2012; Ronaldo Menezes a.o. (eds.), *Complex Networks*, Springer, 2012; and Juval Portugali a.o. (eds.), *Complexity Theories of Cities Have Come of Age*, Springer, 2012. Leading journals are: *Journal of Complexity* (1985 ff.), *Complex Systems* (1987 ff.), *Journal of Systems Science and Complexity* (1988 ff.), *Complexity* (1995 ff.), *Advances in Complex Systems* (1998 ff.) and *Emergence: Complexity & Organization* (1999 ff.). Yearly, many complex-systems related international conferences are organised.

³⁷ See www.scs.org and note 8.

³⁸ See <http://arxiv.org/abs/1112.1440>.

statistical mechanics (the study of the emergence of dissipative structures), *f*) catastrophe theory (the study of sudden shifts in the behaviour of a system arising from small changes in its environment) and *g*) mathematical biology (the mathematical study of the mechanisms involved in biological processes). In the late 1990s, the ‘complexity turn’ took place: social scientists changed their attitude to, and became increasingly interested in, complexity science.³⁹

The recently published and widely acclaimed *Sage Handbook of Complexity and Management*, edited by Peter Allen, Steve Maguire and Bill McKelvey, is ‘the first substantive scholarly work to provide a map of the state-of-the-art research in the growing field emerging at the intersection of complexity science and management studies’. Given that a company belongs to an industry, which is a sector of the economy, which in turn is one of the systems a country consists of, we hope that this paper will convince the reader of the importance of redesigning sinology, of the significance of forging a bridge between complexity science and China studies.

China can be compared with a brilliant-cut diamond, that sparkles in the sun. There will be no brilliance/sparkling until variously educated scientists shed their light on the country. Having many faces/facets, it should be approached integratively. The ‘attack’ on China should be a concerted one and the operation should be a combined effort. Like every country, it should be studied interdisciplinarily and depicted cubistically, with different viewpoints amalgamated into a multifaceted whole. **China is a universe, the centre of which is everywhere.** The whole and the parts are mutually implicated.⁴⁰

There are different ways of scientific collaboration,⁴¹ but they have a common denominator. The scientists involved understand that reality, being the nexus of interrelated phenomena irreducible to a single dimension, can never be grasped by separate disciplines, which form the layout of ‘universities’ since the 18th century. While specialisation has yielded sharper analytical acuity within particular knowledge domains, where the *ceteris paribus clause* has been the self-imposed, unrealistic rule of operation (unrealistic because other relevant things never remain unaltered!), the goal of reaching integrated understanding has receded. Depth of focus has been achieved at the expense of breadth of view. Scientists begin to realise that difficult, real-life problems require the pooling of disciplinary knowledge and analytical skills.⁴² It may be very hard for one (wo)man to become an expert in two disciplines, but two (wo)men jointly well-versed and well-trained in two disciplines, *e.g.* physics and chemistry, chemistry and biology, biology and sociology, sociology and

³⁹ See the special issue of *Theory, Culture & Society* on complexity edited by John Urry (22:5 [October 2005]); Keith Sawyer, *Social Emergence: Societies as Complex Systems*, CUP, 2005; Vladimir Dimitrov, *A New Kind of Social Science*, Lulu Press, 2005; Manuel DeLanda, *A New Philosophy of Society*, Continuum, 2006; Graeme Chesters & Ian Welsh, *Complexity and Social Movements*, Routledge, 2006; John Miller & Scott Page, *Complex Adaptive Systems: An Introduction to Computational Models of Social Life*, Princeton University Press, 2007; Dirk Helbing a.o., ‘Social Systems and Complexity’, *Advances in Complex Systems*, 11:4 (August 2008), 485–652; Brian Castellani & Frederic Hafferty, *Sociology and Complexity Science*, Springer, 2009; Duane Gehlsen, *Social Complexity and the Origin of Agriculture*, VDM, 2009; Gordon Burt, *Conflict, Complexity and Mathematical Social Science*, Emerald, 2010; Ton Jörg, *New Thinking in Complexity for the Social Sciences and Humanities*, Springer, 2011; Hugo Letiche a.o., *Coherence in the Midst of Complexity: Advances in Social Complexity Theory*, Palgrave Macmillan, 2012; Philip Ball, *Why Society is a Complex Matter*, Springer, 2012; Phillip Bonacich & Philip Lu, *Introduction to Mathematical Sociology*, Princeton University Press, 2012; and Bruce Edmonds & Ruth Meyer (eds.), *Simulating Social Complexity: A Handbook*, Springer, 2012. See also note 36, and http://en.wikipedia.org/wiki/Social_complexity.

⁴⁰ The crystal structure of a diamond is a face-centered cubic lattice. Discussing the relation between the whole (the universal, the absolute, sameness) and the parts (the particular, the relative, otherness) is the *basso continuo* in religion and philosophy. See www.spaceandmotion.com/Metaphysics-One-Many-Infinite-Finite.htm and Johannes Brachtendorf & Stephan Herzberg (eds.), *Einheit und Vielheit als metaphysisches Problem*, Mohr Siebeck, 2011. See also note 35.

⁴¹ This subject is connected with the issue of the ‘unity of science’. See <http://plato.stanford.edu/entries/scientific-unity> and the Springer book series, edited by Shahid Rahman and John Symons, *Logic, Epistemology, and Unity of Science*, 2004 ff.

⁴² Whereas the world has interconnected problems, separate universities have ‘departments’, whose members are often bitter rivals. See www.nautilus.org/gps/probs, www.globalissues.org, www.arlingtoninstitute.org/wbp/portal/home, and www.uia.be/encyclopedia.

psychology, psychology and anthropology, anthropology and linguistics, linguistics and neuroscience, neuroscience and sociology, sociology and political science, political science and economics, or economics and physics (econophysics),⁴³ can co-produce something of great value.

Interdisciplinary research is not a simple case of aggregating several disciplines into one, multidisciplinary research project. Extra effort is needed to achieve the promise of synergy, by forming a cohesive team that combines the expertise of different (groups of) people. Cross-disciplinary collaboration is difficult, because it requires a conceptual turnaround, threatens the position of deeply entrenched colleagues, and places one outside the circle of standard job slices. However, it has considerable added value: personal, because it feels right and enriches the life of those involved; scientific, because it minimises duplication, lights up blind spots, fosters analogical reasoning, leads to cross-fertilisation, and – most importantly – stimulates creativity when the members of the team actively listen to, and challengingly question, each other. Data mining and knowledge discovery in databases, the landmarks of the information age, are essentially predicated on interdisciplinarity. Their successes come as a result of collaborative efforts.⁴⁴ Interdisciplinary (as distinct from: *international*) collaboration means integration, not fusion, of disciplines. It is based on the principle $1 + 1 \neq 2$. Its participants are comparable to the members of a symphony orchestra who are professional players of different instruments *put in tune*.⁴⁵

Abstraction has given mathematical structures their portability. They can be carried over from one discipline to another and from one knowledge domain to the next. Indeed, the natural, social and human sciences are increasingly using mathematical methods and techniques, and since the bridge between these sciences and mathematics is heavily traveled, the interdisciplinary dialogue is stimulated. Moreover, scientific collaboration is facilitated by e-science, which combines *a*) vast quantities of digitised data (digital libraries), *b*) supercomputers running sophisticated software, and *c*) high-tech connectivity between computers (cloud - and grid computing, semantic web).⁴⁶ With modern computers, almost any form of knowledge can be precisely expressed, and multi-dimensional computations of complex multi-scale phenomena are not beyond reach anymore.

⁴³ See www.saha.ac.in/cmp/camcs/Sci_Cul_091010/index.html (editorial); www.eoht.info (science [econophysics]); http://web.sg.ethz.ch/Latsis_2012; www.unifr.ch/econophysics; *Interdisciplinary Description of Complex Systems*, Vol. 10, Issue 2, June 2012, iii-iv, 57-113 (online); and *Hyperion International Journal of Econophysics and New Economy* (2008 ff.). Econophysics, comparable to bio-, psycho- and sociophysics, belongs to the growing group called 'heterodox economics' and also including Marxian, Austrian, Post-Keynesian, Sraffian, institutional, and evolutionary economics.

⁴⁴ See the journal, edited by Witold Pedrycz, *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*.

⁴⁵ See Keith Sawyer, *Group Genius: The Creative Power of Collaboration*, Basic Books, 2007; Wesley Shrum a.o., *Structures of Scientific Collaboration*, MIT Press, 2007; Luca Iandoli a.o., 'Can We Exploit Collective Intelligence for Collaborative Deliberation?', 2007 (online); J. Jacobs & S. Frickel, 'Interdisciplinarity: A Critical Assessment', *Annual Review of Sociology*, 35 (August 2009), 43-65; Carolin Kreber (ed.), *The University and its Disciplines*, Routledge, 2009; Robert Frodeman a.o. (eds.), *The Oxford Handbook of Interdisciplinarity*, OUP, 2010; Myra Strober, *Interdisciplinary Conversations*, Stanford University Press, 2010; Michael Jungert a.o. (eds.), *Interdisziplinarität: Theorie, Praxis, Probleme*, WBG, 2010; Catherine Lyall a.o., *Interdisciplinary Research Journeys*, Bloomsbury, 2011; Bharath Sriraman & Viktor Freiman (eds.), *Interdisciplinarity for the Twenty-First Century*, Information Age, 2011; Edward Slingerland & Mark Collard (eds.), *Creating Consilience*, OUP, 2011; and www.parmenides-foundation.org/research.

⁴⁶ See www.dariah.eu, www.digitalhumanities.org, www.h-net.org, www.cdh.ucla.edu, <http://cci.mit.edu>, www.eolss.net, www.kcl.ac.uk/artshums/depts/ddh, www.iccs-meeting.org/iccs2012, www.cscw2012.org, <http://bigdata.csail.mit.edu>, www.ncsa.illinois.edu/News/Stories/bigdata, <http://ercim-news.ercim.eu/images/stories/EN86/EN86-web.pdf>, <http://ercim-news.ercim.eu/en89/special>, www.ncsa.illinois.edu/News/Stories/NCSA2015, www.planet-data.eu, www.w3.org; www.nsf.gov/pubs/2007/nsf0728; www.ctwatch.org; www.esf.org/research-areas/humanities; <https://www.escidoc.org>; www.projectbamboo.org; William Dutton & Paul Jeffreys (eds.), *World Wide Research: Reshaping the Sciences and Humanities*, MIT Press, 2010; Michael Nielsen, *Reinventing Discovery*, Princeton University Press, 2011; Xiaoyu Yang a.o. (eds.), *Guide to e-Science*, Springer, 2011; Matthew Gold (ed.), *Debates in the Digital Humanities*, University of Minnesota Press, 2012; David Berry (ed.), *Understanding Digital Humanities*, Palgrave, 2012; Suzanne Bell, *Librarian's Guide to Online Searching*, Libraries Unlimited, 2012; the IGI Global book series *Advances in E-Collaboration* (2005 ff.); the Springer book series *Transactions on Large-Scale Data- and Knowledge-Centered Systems* (2009 ff.); and the journals *Future Generation Computer Systems* (1985 ff.), *Computer Supported Cooperative Work* (1992 ff.), *International Journal of e-Collaboration* (2005 ff.) and *Journal of Computational Science* (2010 ff.).

Artificial Intelligence, broadly defined as ‘the study of making computers perform tasks that require human intelligence’, is a field of research that develops at an astonishing pace.⁴⁷ In addition to computing with numbers, ‘computing with words’ (CWW), a technology invented and developed by Lotfi Zadeh (father of ‘fuzzy logic’ and ‘soft computing’), is now possible.⁴⁸ Computer engineers made the decisive passage from deterministic to (poly)stochastic systems, *i.e.* to self-organising systems that, resulting from a myriad of ‘independent’, interacting agents, have irreducible, emergent properties.⁴⁹ The old software engineering paradigm, based on linear thinking, reductionism and the superposition principle, is being replaced by a revolutionary new one, based on nonlinear thinking and the science of complex systems.⁵⁰

When Blue Waters comes online, researchers will be able to understand how the cosmos evolved after the Big Bang, to design new materials at the atomic level, and to predict the behaviour of complex biological systems, among other things. Blue Waters, based on a powerful new system design from IBM, will have a peak performance of 10 petaflops (10 quadrillion calculations every second).⁵¹ Some researchers even dream, and explore the feasibility, of a synthesis of computer science, information science, physics, nanoscience and mathematics. Forecasting that ‘sustained petascale computing’ will be dwarfed by quantum computing, they believe that the computer age has not yet really began! The recent detection by Leo Kouwenhoven (Delft University of Technology) of ‘Majorana particles’, subatomic particles that are their own antiparticle [*yin = yang*], may be a major step in that direction.⁵²

A RESEARCH PROJECT PROPOSAL

⁴⁷ See Stuart Russell & Peter Norvig, *Artificial Intelligence*, Pearson, 2010, pp. 1044-1052 and 1063; Juyang Weng, *Natural and Artificial Intelligence*, BMI Press, 2012; Keith Frankish & William Ramsey (eds.), *The Cambridge Handbook of Artificial Intelligence*, CUP, 2013; <http://plato.stanford.edu/entries/logic-ai>; and the book series *Lecture Notes in Artificial Intelligence* (Springer), *Foundations of Artificial Intelligence* (Elsevier), *Frontiers in Artificial Intelligence and Applications* (IOS Press) and *Atlantis Thinking Machines* (Springer). See also note 11.

⁴⁸ See Lotfi Zadeh, *Computing with Words: Principal Concepts and Ideas*, Springer, 2012. A special issue of *International Journal of Intelligent Information Technologies* on CWW is forthcoming. ‘Computing with words’ is not to be confused with ‘natural language processing’ (NLP). See Nitin Indurkha & Fred Damerau (eds.), *Handbook of Natural Language Processing*, CRC Press, 2010; and www.nlpke.org/nlpke2012.

⁴⁹ See www.scholarpedia.org/article/agent_based_modeling, www.cabss.titech.ac.jp, www.agent-based-models.com, <http://www2.econ.iastate.edu/tesfatsi/abmread.htm>; www.paaa.asia/aescs2012; and the open access Springer journal *Complex Adaptive Systems Modeling*. For self-organising systems, see Steven Strogatz, *SYNC: The Emerging Science of Spontaneous Order*, Hyperion, 2003; Hermann Haken, *Information and Self-Organization*, Springer, 2006; Dirk Helbing, *Social Self-Organization*, Springer, 2012; and <http://iwsos2012.ewi.tudelft.nl>. The founder of philosophical Daoism, Laozi (6th century BC), who emphasised the importance of ‘spontaneous’ (*ziran*) order, was probably the first *laissez-faire* thinker. For emergence/emergent properties, see <http://plato.stanford.edu/entries/properties-emergent>; <http://isce.edu>; <http://emergent.brynmawr.edu/eprg>; www.arxiv.org/abs/1106.0704; www.arxiv.org/abs/1106.0702; www.icam-i2cam.org; Harold Morowitz, *The Emergence of Everything: How the World Became Complex*, OUP, 2002; Mario Bunge, *Emergence and Convergence*, University of Toronto Press, 2003; Philip Clayton & Paul Davies (eds.), *The Re-Emergence of Emergence*, OUP, 2006; Gianfranco Minati a.o. (eds.), *Processes of Emergence of Systems and Systemic Properties*, World Scientific, 2008; Jens Greve & Annette Schnabel (eds.), *Emergenz*, Suhrkamp, 2011; Rémy Lestienne, *Dialogues sur l'émergence*, Le Pommier, 2012; Liz Swan a.o. (eds.), *Origin(s) of Design in Nature*, Springer, 2012; John Padgett & Walter Powell, *The Emergence of Organizations and Markets*, Princeton University Press, 2012; and the forthcoming Springer book series *Emergence, Complexity and Computation*, to be distinguished from the journal *Emergence: Complexity & Organization*.

⁵⁰ See Jay Xiong, *The New Software Engineering Paradigm*, Springer, 2011. See also note 31 and 36.

⁵¹ See www.ncsa.illinois.edu/News/Stories/pdfs/prepare_petascale.pdf, www.ncsa.illinois.edu/25years, <http://meetings.aps.org/Meeting/MAR12/Event/166469> and <http://www.ncsa.illinois.edu/News/12/03206teams.html>. See also www.top500.org and www.ibm.com.

⁵² See <http://plato.stanford.edu/entries/qt-quantcom>; www.quantuminteraction.org; www.perimeterinstitute.ca; Andrew Whitaker, *The New Quantum Age*, OUP, 2012 (Part III); Andrey Varlamov & Lev Aslamazov, *The Wonders of Physics*, World Scientific, 2012 (Part IV); Hector Zenil (ed.), *A Computable Universe*, World Scientific, 2012 (Chapters 28-33); and Colin Williams, *Explorations in Quantum Computing*, Springer, 2011. For the hunt for Majorana particles, see www.arxiv.org/pdf/1112.1950v2 and www.arxiv.org/abs/1205.7073v1. See also note 35.

A study of the modernisation of China is arguably the most important research project that sinologists could embark on in close collaboration with scientists ready and willing to cooperate with other scientists. In his best-selling book *The Search for Modern China* (Norton, 1990), Jonathan Spence, Sterling Professor of History Emeritus at Yale University, heroically tried to tackle the vexed problem single-handedly.⁵³ However, he does not touch upon, let alone discuss, the issue of modernity. The lemmas ‘enlightenment’, ‘counter-enlightenment’, ‘modernity’, ‘post-modernity’, ‘state’, ‘nation-state’, ‘liberty’/‘liberalism’, ‘equality’, ‘solidarity’, ‘justice’, ‘rule of law’, ‘popular sovereignty’, ‘citizenship’, ‘civil society’, ‘privacy’, ‘human rights’, ‘private property/ownership’, ‘legitimacy’, ‘separation of powers’, ‘checks and balances’, ‘mass media’, ‘scientific revolution’, ‘industrial revolution’, ‘electric age’, ‘electronic age’, ‘information age’, ‘capitalism’, ‘welfare’, ‘rationality’, ‘critique’, ‘commercialization’, ‘progress’, ‘secularization’, ‘emancipation’, ‘European miracle’, ‘disenchantment’, ‘estrangement’/‘alienation’, ‘decadence’, ‘westernization’ and ‘globalization’ are conspicuous by their absence from the book’s index. One wonders if the author, who received eight honorary degrees in America, China and Great Britain, was well-informed about the subject matter of his ‘*magnum opus*’.

The Western debate about modernisation, the idea of which is tied up with the idea of progress, has become ferociously complex. We could easily mention the names of hundreds of philosophers, writers and scientists having been involved in it (since the end of the history of modernisation is not in sight, *n'en déplaie à* Francis Fukuyama, a definitive judgement has to be postponed).⁵⁴ The heart of the matter seems to be that modernity is understood as the attempt to find the secular, rational principle of order (‘the problem of order’).⁵⁵ There is disagreement as to when this attempt began (with the Milesian cosmologists [Axial Age], the Papal Revolution [led by Pope Gregory VII], the Renaissance-Humanism, the Age of Discovery/Exploration, the Protestant Reformation, or the rise of the Nation-State?), but what no one disagrees with is, that the revolutions instigated by Copernicus, Galileo, Vesalius, Newton and Darwin were crucial catalysts. Understanding the world as potentially comprehensible and subject to human will, these men, and those who refined their views, radically changed the intellectual discourse. Rather than leave the awesome power of directing the individual’s fate to God and His Representative on earth (the ultimate pontiff), or to a monarch claiming to rule ‘by the Grace of God’, they posed the really revolutionary question: what if society (always thought to be a great, predetermined organism) is made up of individual organisms, each with the power to more or less shape its own destiny? Society’s future is then what its members decide to make of it.⁵⁶

⁵³ In the preface to the Chinese translation (dated March 31, 2001), Spence acknowledges that he learned a lot from John King Fairbank (co-author, with Edwin Reischauer and Albert Craig, of *East Asia: The Modern Transformation*, Allen & Unwin, 1965) and Immanuel C. Y. Hsü (author of *The Rise of Modern China*, OUP, 1970), but he forgets to mention the names Knight Biggerstaff (author of ‘Modernization and Early Modern China’, *The Journal of Asian Studies*, 25:4 [August 1966], 607-619) and Gilbert Rozman (editor of *The Modernization of China*, The Free Press, 1981).

⁵⁴ Prominent names are Locke, Spinoza, Rousseau, Kant, Hegel, Kierkegaard, Nietzsche, Freud, Durkheim, Simmel, Husserl, Max Weber, Karl Polányi, Eugen Rosenstock-Huussy, Martin Heidegger, Lewis Mumford, Norbert Elias, Leo Strauss, Theodor Adorno, Jacques Ellul, Reinhard Bendix, Harold Berman, Douglass North, Shmuel Eisenstadt, Zygmunt Bauman, Ernest Gellner, Michel Foucault, Robert Bellah, Jürgen Habermas, Ágnes Heller, Immanuel Wallerstein, Charles Taylor, Seyyed Hossein Nasr, David Harvey, Anthony Giddens, Quentin Skinner, Krishan Kumar, Joel Mokyr, Arjun Appadurai, Slavoj Žižek, Richard Tarnas, Ken Pomeranz, Jonardon Ganeri, Ian Morris, Peer Vries, Michel Houellebeck, and Ricardo Duchesne.

⁵⁵ The idea of ‘order’ (Skr. *rita*) is of central importance in mathematics (set, structure), physics (cosmos, entropy), systemics (holon), cybernetics (control), synergetics (pattern formation), informatics (entropy), politics/jurisprudence (government) and organisation/management studies. For the Chinese, order is the essence of *Dao* (道), and vice versa!

⁵⁶ See Ellis Cashmore & Chris Rojek (eds.), *Dictionary of Cultural Theorists*, Arnold, 1999, 2-6. For the origin, genesis and significance of individualism, which has made the West so different from the Rest, see Georges Gusdorf, *La découverte de soi*, PUF, 1948; Crawford Macpherson, *The Political Theory of Possessive Individualism: Hobbes to Locke*, OUP, 1962; Colin Morris, *The Discovery of the Individual: 1050-1200*, Harper & Row, 1972; Steven Lukes, *Individualism*, Harper & Row, 1973 (2006); Jacques Le Goff, *La naissance du Purgatoire*, Gallimard, 1981; Luis

In the 17th century, which has been called the ‘century of genius’,⁵⁷ the gap between revelation (Jerusalem) and reason (Athens) that was thought to have been bridged in the Middle Ages (Thomas Aquinas)⁵⁸ opened wider, and the relationship between religion/faith and science became a problem. In his consummate, extensively researched book *Shūkyō to wa nanika* (What is Religion? [1961]), Nishitani Keiji, notable member of the Kyoto School of philosophy, writes: ‘The problem of religion and science is the most fundamental problem facing contemporary man’.⁵⁹ In the Age of Reason, aka the Age of Enlightenment, the ideas of Bacon, Hobbes, Descartes, Locke, Spinoza, Leibniz and Hume were popularised. Never had there been an age so skeptical about tradition, so suspicious of authority, so confident of the powers of reason, and so deeply imbued with a sense of progress.⁶⁰

Modern society has its origins in the Industrial Revolution and the French Revolution, which began in the later part of the 18th century, but these great upheavals, which gave fresh impetus to the development of liberal ideas⁶¹ and spawned the social sciences,⁶² were part of the pattern of change that, in the preceding centuries, had set the West on a different path of development from that of the rest of the world.⁶³

In the words of Carlo Cipolla, author of the standard book *Before the Industrial Revolution: European Society and Economy, 1000-1700* (1976):

‘The world in which we live and the problems we face would be unintelligible without reference to that grandiose change we label the Industrial Revolution. In its turn, the Industrial Revolution was but the ultimate phase, the historically coherent outcome of a development which took place in Europe during the first seven centuries of our millennium.’ (p. xiii);

and in the words of Robert Palmer, author of the magisterial study *The Age of the Democratic Revolution: A Political History of Europe and America, 1760-1800* (1964):

‘By 1300 the ‘rise of Europe’ was an accomplished fact. The third of the three segments into which the Graeco-Roman world had divided, the one which in 700 had been the most barbarous, now some six hundred years later had a civilization of its own. It was not in its material culture, in the technical crafts, in the arts of building, in the distances traveled by its

Dumont, *Essais sur l'individualisme*, Le Seuil, 1983; Charles Taylor, *Sources of the Self: The Making of the Modern Identity*, CUP, 1989; Enno Rudolph, *Odysee des Individuums*, Metzler, 1991; Daniel Shanahan, *Toward a Genealogy of Individualism*, University of Massachusetts Press, 1992; and Aaron Gurevich, *The Origins of European Individualism*, Blackwell, 1995. For the individualism-holism problem, see Harry Triandis, *Individualism & Collectivism*, Westview Press, 1995; and Aviezer Tucker (ed.), *A Companion to the Philosophy of History and Historiography*, Wiley-Blackwell, 2009 (chapter 18). For methodological individualism, of which mainstream microeconomics is the basic paradigm, see <http://plato.stanford.edu/entries/methodological-individualism>.

⁵⁷ See www.clas.ufl.edu/users/ufhatch/pages/03-Sci-Rev/SCI-REV-Home.

⁵⁸ See D.J. O'Connor (ed.), *A Critical History of Western Philosophy*, The Free Press, 1964, 99-104.

⁵⁹ See www.iep.utm.edu/sci-rel; <http://plato.stanford.edu/entries/religion-science>; Philip Clayton (ed.), *The Oxford Handbook of Religion and Science*, OUP, 2006; Charles Taylor, *The Secular Age*, Harvard University Press, 2007; Steve Bruce, *Secularization*, OUP, 2011; and Nina Azari a.o. (eds.), *Encyclopedia of Sciences and Religions*, Springer, 2013.

⁶⁰ See <http://plato.stanford.edu/entries/enlightenment> and Knud Haakonssen (ed.), *The Cambridge History of Eighteenth-Century Philosophy*, CUP, 2006. Comparing ‘Enlightenment’ in the West with ‘Enlightenment’ in the East (Buddhism, Hinduism, and Jainism) could be enlightening.

⁶¹ See <http://plato.stanford.edu/entries/liberalism> and Alan Ryan, *The Making of Modern Liberalism*, Princeton University Press, 2012.

⁶² The 26-volume *International Encyclopedia of the Social & Behavioral Sciences* (2001) provides a stellar overview of this expanding universe (which differs from the equally expanding *universa* called natural [physical and biological], human, formal, and applied sciences). See also www.proquest.co.uk/en-UK/catalogs/databases/detail/ibss-set-c.shtml.

⁶³ See www.thewha.org/recommended_books.php, www.fordham.edu/halsall/mod/modsbook.asp, www.cambridge.org/gb/knowledge/other_subject/item1685/?site_locale=en_GB, www.ieg-ego.eu/en/ego, <http://eurodocs.lib.byu.edu> and www.euarchives.org. UNESCO’s seven-volume *History of Humanity* is unsurpassed and www.everyhistory.org is breathtaking.

merchants, nor in the mere size or magnificence of its cities that Europe in 1300 surpassed the Arabic, Byzantine, Indian, or Chinese civilization of that time. If it surpassed them at all, if it had any secret that the others did not know, its uniqueness lay in the realm of intangibles. Europe had a political system that blended freedom with more general order; a labor system in which no one was totally enslaved; a spiritual outlook producing a restless activity, because nothing that actually existed was ever believed to be perfect; an intellectual outlook not averse to the new, yet incorporating the old; a diversity of many nations which yet somehow were all the same.⁶⁴

From its original European base, modernisation has extended over the whole world, a process called westernisation.⁶⁵ It has led to fundamental instabilities and tensions sometimes causing, as in the Earth's crust, devastating eruptions and shocks. To become modern has been to become something like a Western society, but the question as to whether economic modernisation and political modernisation, in order to be successful, should go hand-in-hand has not been conclusively answered yet.

The important question has been raised: why did the Celestial Empire, whose 'superior blessings induced outer barbarians to come and to be transformed' (Fairbank), *not* realise the Great Transformation from tradition to modernity? Why did the Middle Kingdom, that pretended to embody civilisation itself, *not* make the quantum leap of the industrial revolution, and *not* establish a constitutional and democratic society? In other words, how come Chinese history lacks what Reinhart Koselleck aptly called the 'Sattelzeit'? Over half a century ago, 'scientist and sinologist' Joseph Needham (1900-1995), determined to find an answer to this question, launched the long-term project *Science and Civilisation in China*. The work resulting from this planned undertaking has been acclaimed as perhaps the greatest single act of historical synthesis and intercultural communication ever attempted, but it has also been criticised for 'its strong inclination to exaggerate China's technological achievements'. Unafraid of eyebrows being raised, we venture to add two points to this criticism: *a*) the key terms 'science' and 'civilisation' are neither defined nor analysed, causing the whole project somewhat hanging in the air; and *b*) the conceptual structure of the work is highly questionable. If 'philosophy of science without history of science is empty, but history of science without philosophy of science is blind' (Lakatos); if sociology of science, focusing on its institutional infrastructure, must be *der Dritte im Bunde*; and if science, whose boundary with mathematics is blurred beyond recognition, is as much dialectically related to technology as the latter is to production/manufacturing, then it would not be unjustified to maintain that the Needham-project is not well-balanced.⁶⁶

Naitō Torajirō (Konan, 1866-1934), renowned for his knowledge of Chinese history, challenged the widely accepted view that the modern era in China began with the arrival of the Westerners – either with the appearance of Portuguese traders and Jesuit missionaries, in the 16th century, or with the opening of China as a result of the First Opium War, in the 19th century. He maintained that the 'modern period' (*kinsei*) began during the Northern Song dynasty (960-1127) and argued that there

⁶⁴ See also note 56. Scholarly interest in Palmer's perspective has been revived by the Italian historian Franco Venturi.

⁶⁵ For a different view, see Jerry Bentley, 'Early Modern Europe and Early Modern World', in Charles Parker & Jerry Bentley (eds.), *Between the Middle Ages and Modernity*, Rohman & Littlefield, 2007, 13-31.

⁶⁶ See www.nri.org.uk; www.cshst.org.cn; www.ihns.ac.cn; <https://sites.google.com/a/dhstweb.org/www>; www.hssonline.org; www.crhst.cnrs.fr; www.cirphles.ens.fr/?lang=fr; www.hps.cam.ac.uk/research/ssk.html; <http://jssts.jp>; <http://sts.sagepub.com>; www.stswiki.org; www.easst.net; www.techculture.org; www.ieit-web.org/apscj; www.4sonline.org; www.mpiwg-berlin.mpg.de; James Holstein & Jaber Gubrium (eds.), *Handbook of Constructionist Research*, Guilford Press, 2008 (chapter 11); and Paul Thagard, *The Cognitive Science of Science*, MIT Press, 2012 (chapter 1). See also note 5. Part I of the final volume of *Science and Civilisation in China*, published in 1998, deals with language and logic. It is written by sinologist Christopher Harbsmeier, a 'well-known expert' who, like his colleague Chad Hansen (author of *Language and Logic in Ancient China*, University of Michigan Press, 1983), is neither linguist nor logician by profession.

had been no fundamental changes in Chinese society thereafter. His most famous disciple, Miyazaki Ichisada (1901-1995), added a fourth stage to the ancient, medieval, and modern period: the ‘most modern period’ (*saikinsei*), beginning with the 1911 Revolution (Sun Yat-sen).⁶⁷

China was clearly more modernised in 2000 than in 1900, but how much more? How far must it still proceed before reaching the stage of a truly modern nation? After the Meiji Restoration (1868), Japan, adopting (and adapting) the Western model, rose to become a rich and powerful country.⁶⁸ In the 1970s, South Korea, Taiwan, Hong Kong, and Singapore, following in the footsteps of Japan, rose to prominence as the Four Asian Tigers, or the Newly Industrialising Countries (NICs). They have since graduated to advanced economies.⁶⁹ After the death of Mao Zedong (1893-1976) and the downfall of the ‘Gang of Four’ (*siren bang*), China, heavily drawing on the experience of the NICs (Taiwan!) and Japan, has – the proclamations about ‘socialism with Chinese characteristics’ (*Zhongguo tese shehuizhuyi*) notwithstanding – been taking the capitalist road, so much so that CCP is now ironically said to be an acronym referring to the Chinese Capitalist Party.⁷⁰ The ‘four modernisations’ (*sige xiandaihua*), of agriculture, industry, national defense, and science & technology, are the main targets the leadership in Beijing attempts to achieve. However, granted that ‘Mr Democracy’ (Hu Shih) has a checkered career,⁷¹ the big question is: Can these modernisations be realised without radical political changes? Can China be a ‘prosperous and powerful’ (*fuqiang*) country the inhabitants of which are essentially subjects rather than citizens? Can there be a ‘rejuvenated’ (*fluxing*), ‘well-off’ (*xiaokang*) society where unprivileged people live without respect for their dignity and rights? Or to say the same differently: are standing on one’s own feet (Mao Zedong) and having a full stomach (Deng Xiaoping) sufficient conditions for being able to raise one’s head proudly and to keep it high? In brief: **Can China be a modern nation without liberty?**⁷²

⁶⁷ See www.icis.kansai-u.ac.jp/en/syukai02.html; <http://earlymodernworld.uchicago.edu/kishimoto.pdf>; and Li Qing, ‘On Naitō Konan’s Theory of Tang-Song Transition’, *Academic Monthly*, 2006, Issue 10, 116-125.

⁶⁸ A critical comparison of the second, enlarged edition of Spence’s book (1999), Wakeman & Wang Xi (eds.), *China’s Quest for Modernization* (University of California Press, 1997), Marius Jansen, *The Making of Modern Japan* (Harvard University Press, 2000) and James McClain, *Japan: A Modern History* (Norton, 2002) could reveal interesting points.

⁶⁹ See Gerald Tan, *The Newly Industrialising Countries of Asia*, Marshall Cavendish, 2004.

⁷⁰ See Kellee Tsai, *Capitalism without Democracy*, Cornell University Press, 2007; Mary Gallagher, *Contagious Capitalism: Globalization and the Politics of Labor in China*, Princeton University Press, 2007; Gordon Redding & Michael Witt, *The Future of Chinese Capitalism*, OUP, 2007; Christopher McNally (ed.), *China’s Emergent Political Economy: Capitalism in the Dragon’s Lair*, Routledge, 2008; Huang Yasheng, *Capitalism with Chinese Characteristics*, CUP, 2008; Loren Brandt & Thomas Rawski (eds.), *China’s Great Economic Transformation*, CUP, 2008; Arthur Sweetman & Jun Zhang (eds.), *Economic Transitions with Chinese Characteristics*, McGill-Queen’s University Press, 2009; Gregory Chow, *Interpreting China’s Economy*, World Scientific, 2010; Yin-wah Chu (ed.), *Chinese Capitalisms: Historical Emergence and Political Implications*, Palgrave, 2010; Carl Walter & Fraser Howie, *Red Capitalism: The Fragile Financial Foundation of China’s Extraordinary Rise*, Wiley, 2011; Loretta Napoleoni, *Maonomics: Why Chinese Communists Make Better Capitalists Than We Do*, Seven Stories Press, 2011; Scott Kennedy (ed.), *Beyond the Middle Kingdom: Comparative Perspectives on China’s Capitalist Transformation*, Stanford University Press, 2011; and Michael Webber, *Capitalism in Rural China*, Edward Elgar, 2012.

⁷¹ See Robert Dahl, *Democracy and its Critics*, Yale University Press, 1989; Hans-Hermann Hoppe, *Democracy: The God That Failed*, Transaction Publishers, 2001; Benjamin Barber, *Strong Democracy*, University of California Press, 2004; Pierre Rosanvallon, *La Contre-démocratie*, Seuil, 2006; Bryan Caplan, *The Myth of the Rational Voter*, Princeton U.P., 2007; John Keane, *The Life and Death of Democracy*, Simon & Schuster, 2009; and <http://www.iefd.org>.

⁷² There is a vast and expanding literature on liberty (the essence of Ludwig van Beethoven’s message) and liberalism (one of the main political ideologies), but Étienne de La Boétie’s *Discours de la servitude volontaire* (1576), Friedrich Schelling’s *Philosophische Untersuchungen über das Wesen der menschlichen Freiheit* (1809) and John Stuart Mill’s *On Liberty* (1859), all online, are must-reads (particularly for Jiang Ching, celebrated author of *A Confucian Constitutional Order*, Princeton University Press, 2012). The *Magna Carta* (also called *The Great Charter of the Liberties of England*) deserves special mention (www.bl.uk/treasures/magnacarta) and Maurizio Viroli’s *The Liberty of Servants: Berlusconi’s Italy* (Princeton University Press, 2011) may be an eye-opener for the Chinese as well. See also note 61. It would be interesting to compare ‘The Great Chinese Revolution’ (Fairbank) with the Papal, the Protestant, the English, the American, the French, and the Russian Revolution, all of them being major ‘system-of-systems’ (SoS) changes.

SUMMARY AND CONCLUSION

The thesis presented in this paper is that there is something terribly wrong with Western sinology. The field is not circumscribed. Unable to define their disciplinary matrix, not having built a domain ontology (a precise explanation of the terms in their subject-area), not commanding a theory of their own, and not searching for systematised knowledge with regard to China as a whole (their proclaimed object of inquiry), the so-called China experts in Europe and America are not scientists, even if science is broadly defined. Ignoring the elephant in their room, these scholars boldly claim to synthesise the results of all kinds of professional study regarding the country of their choice and predilection but, without a conceptual framework, *i.e.* without a model representing China in and of itself, they are not able to present a comprehensive and coherent picture of the country,⁷³ not to mention a clear exposition of its dynamics, its phase transitions, its transformation logic. Browsing and trespassing rather than really ‘putting together’ is what they are good at. Having no degree in any of the disciplines concerned, they do not shrink from rushing in where angels fear to tread. Pretending, or implicitly claiming, to be a scientific all-rounder in respect of China, these jacks-of-all-trades keep the reader/listener in the dark as to how the parts fit into the whole and, conversely, how the whole stands interconnected with the parts. Their China approach is *mile-wide-but-inch-deep*. Though their population is dwindling, they are by no means extinct.

The claimed post-war ‘split of sinology into specialisms’ has worsened the situation, because there is confusion as to who has a thorough grounding in a scientific discipline and who hasn’t. Some, and we believe many, ‘experts’ are actually amateurs who have the bad habit of putting on the hat of a scientist without filling his shoes. Others have no qualms about introducing themselves simply as ‘Professor at the University of ... (name of city)’. A request to present academic credentials is considered a token of disrespect, and – clear case of ‘capture’ – deeply ingrained customs preclude fundamental internal criticism, causing intellectual inbreeding. Occasionally – we confine ourselves to one example – someone, knowing very well that studying a language is not the same as studying the literature written in that language, decided to enrol for literary science before hurling him/herself at the *Chinese* literature. His/her monodisciplinary approach to the country is then *mile-deep-but-inch-wide* (the truth would be intolerably stretched, if such a person permitted people to call him/her ‘China expert’). However, the problem with these scientists, who Max Weber would have derogatorily called *Fachmenschen*, is that they are accusable of silo/stovepipe thinking, of not seeing the big (country)picture, of being unable to think systemically (to discern the parts as well as the whole).⁷⁴ To remove this odium, they have a tendency to cross boundary lines, blissfully ignorant about the dangers of skating on thin ice. The reader taking pains to check the list of contributors to the scholarly journals *T’oung Pao*, *Monumenta Serica*, *Asia Major*, *Late Imperial China*, *Modern China*, *Journal of Contemporary China*, *Journal of Current Chinese Affairs*, *China Currents*, *Chinese Cross Currents*, *China in Focus*, *Twentieth-Century China*, *China Information*, *China Perspectives*, *Études chinoises*, *China Report*, *The China Review*, *Harvard China Review*, *China Review International*, *The China Journal*, *The China Monitor*, *The China Quarterly*, *China: An International Journal*, *Journal of Chinese Studies*, *International Journal of China Studies*, *International Journal of Current Chinese Studies*, *Tsinghua Journal of Chinese Studies*, *Journal of the British Association for Chinese Studies*, *American Journal of Chinese Studies*, *EACS* (European Association for Chinese Studies) *Newsletter*, *Columbia East Asia Review*, *Stanford Journal of East Asian Affairs*, *European Journal of East Asian Studies*, *Bochumer Jahrbuch zur Ostasienforschung*, *Sungkyun Journal of East Asian Studies*, *Taiwan Journal of East Asian Studies*, *Journal of East Asian Studies*, *East Asia Forum Quarterly*, *(The) Journal of Oriental Studies*, *Oriens Extremus*, *Acta Orientalia*, *Acta Orientalia Belgica*, *Acta Orientalia Vilnensia*, *Orientalia Suecana*, *Archiv orientální*, *Far Eastern Affairs*, *Journal of the American Oriental Society*, *Journal of the Oriental*

⁷³ That is to say, a picture different from the national characterisations and ethnic stereotypes studied by imagologists. See Waldemar Zacharasiewicz, *Imagology Revisited*, Rodopi, 2010; and www.imagologica.eu.

⁷⁴ Zhuangzi (369-286 BC) famously said: ‘A frog at the bottom of a well cannot conceive of the sea’.

*Society of Australia, Bulletin of the School of Oriental & African Studies, Journal of Asian and African Studies, Asian Survey, Asian Studies Review, Asian Culture, Journal Asiatique, Harvard Journal of Asiatic Studies, New Zealand Journal of Asian Studies, The Copenhagen Journal of Asian Studies, Virginia Review of Asian Studies, IAS (International Institute for Asian Studies) Newsletter, Southeast Review of Asian Studies, Journal of Contemporary Asia, The Journal of Asian Studies, The International Journal of Asian Studies, Modern Asian Studies, Asiatische Studien, Studies on Asia, Asia Papers and Critical Asian Studies*⁷⁵ will discover that the editorial board of these competing periodicals has not been consistent in its declared policy on the professionalism of authors. All too often, published articles are *not* ‘of the highest academic standard’. In our view, the wheat has not always been separated from the chaff, and experts in their own field of study are still allowed by editors who may not be kosher themselves to veer off course, that is to say, to leave their academic home turf and to enter unlawfully upon somebody else’s professional domain.⁷⁶

The way ahead for Western sinologists is two-pronged: **translating** or **collaborating**. They are supposed to be fluent in classical and modern Chinese. So our advice would be: cobbler, stick to your last. There are numerous important Chinese books eagerly awaiting translation. If their desire is to embark on the study of a China-related subject, we would counsel them not to venture forth on too vast a sea, but to look around for scientists to set up a joint venture, with the caveat that partial views do not add up to a picture of *the whole* of China. For making good use of organised and structured databases, they need to be interconnected.⁷⁷ Juxtaposed partial studies that are not dovetailed or interlocked provide the reader with a *spectacle coupé*, with a Humpty-Dumpty broken into bits. Such studies lack an overarching, unifying (not: uniform) theoretical framework. Parceling up neglects relations that matter. Compartmentalisation, the breaking down (mentally) of a complex system into ‘more manageable’ subsystems, easily results in losing sight of the context, of the ‘environment’, of the conditions under which these subsystems operate within their (usually open) suprasystem. A good physician and a commander-in-chief know this. We need ‘multimodal integration’.⁷⁸ If and only if they are orderly and specifically put together, single modules/entities/agents constitute a whole, as every architect, astronaut, *chef de cuisine*, composer, flower arranger (*ikebana*), novelist, even a football coach can tell. The interactions and interfaces between the components of a country need to be investigated, much in the same way as the fundamental structure of the human language faculty is examined in current linguistics.⁷⁹ For, as the ancients intuitively knew already, the perpetual interplay of components (a process involving exclusiveness-dissimilarity-uniqueness-discreteness as well as inclusiveness-similarity-commonness-continuity) is the basic principle of life and the core of all matter; it is the very essence of intelligence, creativity and harmony.⁸⁰ In the words of Chinese-American theoretical physicist Kerson Huang: ‘Interaction makes the world tick’.

⁷⁵ The word ‘Chinese’, or ‘Asian’, in the title of some journals is ambiguous; ‘Asia’ is a vague, ill-defined concept; and the words ‘oriental’ and ‘Far Eastern’ smack of bygone colonialism.

⁷⁶ Checking the online bibliography compiled by Lubna Malik and Lynn White (www.princeton.edu/~lynn/chinabib.pdf) and the list of contributors to *Das grosse China-Lexikon* (WBG, 2008), and to the eight-volume set *Contemporary China Studies* (Sage, 2011), the honest and truthful reader will come to the same conclusion.

⁷⁷ The online *Encyclopedia of Life Support Systems* (www.eolss.net) demonstrates this. Being an ‘integrated compendium of twenty encyclopedias’, EOLSS ‘attempts to forge pathways between disciplines in order to show their interdependence’. It ‘deals in detail with interdisciplinary and transdisciplinary subjects, but it is also disciplinary, as each major core subject is covered in great depth by world experts.’ See also www.springerreference.com.

⁷⁸ We borrow this expression from perception scientists. See Lawrence Rosenblum, *See What I’m Saying: The Extraordinary Powers of Our Five Senses*, Norton, 2010, 267-293; David Bennett & Chris Hill (eds.), *Sensory Integration and the Unity of Consciousness*, MIT Press (forthcoming); <http://thecenses.org>; and note 9.

⁷⁹ See Gillian Ramchand & Charles Reiss (eds.), *The Oxford Handbook of Linguistic Interfaces*, OUP, 2007, 1-13; and William O. Grady a.o., *Contemporary Linguistics: An Introduction*, Bedford/St. Martin’s, 2009, chapters 2-6 and 12-14.

⁸⁰ Tibetan *mandalas*, symbolising the universe, model the movement from the one to the many or from the many to the one (see Giuseppe Tucci, *The Theory and Practice of the Mandala*, Rider, 1961). Mathematicians will associate this with the inverse operations of differentiation and integration (fundamental theorem of calculus). See note 35 and 40. For the

The main thrust of our argument is that China needs to be seen *sub specie totius*, and must be depicted not in a ‘flat’, or ‘curved’, but in a ‘fully rounded’ way.⁸¹ It cannot be overstressed, particularly in the much touted ‘2012 EU-China Year of Intercultural Dialogue’: in order to be scientific, the approach to the country should be integrative, orchestral. Being a large, intricate and culturally unique society *cum polity cum economy cum geography cum history*, it has to be studied truly interdisciplinarily. The praesidium of no ‘university’ (what’s in a name?) should forget the old adage: *L’unité fait la force*. Besides collaboration between sinologists and scientists, we need ICT-driven collaboration between China-oriented scientists. In other words, we are in need of sinologists who are prepared to work together with scientists having *a*) profound knowledge in a particular discipline, *b*) special interest in China, *c*) proficiency in communicating with other T-shaped experts, and *d*) skill in using the tools provided by rapidly developing e-research; with scientists being, additionally, aware that geography is nothing but history in space, and that history is only geography in time.

The method of ‘structured dialogic design’ (Alexander Christakis) could be used to engage the stakeholders in a productive conversation; the techniques of concept analysis/mapping, data mining/integration and information retrieval/visualization could be applied to capture their attention or stimulate their imagination; and much could be learned from those having first-hand experience in managing/governing big projects.⁸² First and foremost, however, sinologists and China-oriented scientists willing to team up with each other should pick the brains of people well versed in network – and (complex) systems science. For these are the fast evolving fields of research that may provide a conceptual framework within which the closely intertwined patterns of China can be described and analysed in a meaningful way. Indeed, these are the formal disciplines that can play a crucial role in understanding any country, and ultimately the whole world, which is – we wonder whether students of international relations are fully aware of it – a hypercomplex system of complex systems of complex systems in the cosmos (the grand total).⁸³

unity of discreteness and continuity, see Alain Laibelman, *Discreteness, Continuity, and Consciousness*, Peter Lang, 2007 (chapter 3); and Jean-François Dars & Anne Papillault (eds.), *Le plus grand des hasards*, Belin, 2010.

⁸¹ The words ‘flat’, ‘curved’ and ‘fully rounded’ were coined by the novelist E.M. Forster.

⁸² See Thomas Flanagan & Alexander Christakis, *The Talking Point: Creating an Environment for Exploring Complex Meaning*, IAP, 2010; Brian Moon a.o. (eds.), *Applied Concept Mapping*, CRC Press, 2011; Jiawei Han a.o., *Data Mining: Concepts and Techniques*, Elsevier, 2012; Ayşe Göker & John Davies (eds.), *Information Retrieval: Searching in the 21st Century*, Wiley, 2009; the Springer book series *Transactions on Large-Scale Data- and Knowledge-Centered Systems* (2009 ff.); Colin Ware, *Information Visualization*, Elsevier, 2012; Hunter Whitney, *Data Insights*, Kaufmann, 2012; Robert Wysocki, *Effective Project Management*, Wiley, 2011; the journals *Information Visualization* and *International Journal of Computer Vision*; and the websites www.vismaster.eu, www.indiana.edu (search: Katy Börner), www.ncsa.illinois.edu/News/Video/2012/sci_viz.html, www.nsf.gov (search: visual analytics), www.onezoom.org, www.cg.tuwien.ac.at, <http://design.osu.edu/carlson/history/lessons.html>, www.visweek.org, www.maxwideman.com and www.projectmanagement-training.net/book. See also note 9, 26 and 45.

⁸³ For network science, see www.networkinstitute.nl; www.networkologies.wordpress.com; www.barabasilab.com; <http://arxiv.org/abs/1205.6822>; <http://arxiv.org/abs/1206.1331>; www.insna.org; www.cnn.group.cam.ac.uk; www.scholarpedia.org/article/small-world_network; Duncan Watts, *Six Degrees: The Science of a Connected Age*, Norton, 2003; Bertrand Roehner, *Driving Forces in Physical, Biological and Socio-economic Phenomena: A Network Science Investigation of Social Bonds and Interactions*, CUP, 2007; Alain Barrat a.o., *Dynamical Processes on Complex Networks*, CUP, 2008; Nicholas Christakis & James Fowler, *Connected*, Little Brown, 2009; Paul Kleindorfer a.o., *The Network Challenge*, Pearson, 2009; Mark Newman, *Networks: An Introduction*, OUP, 2010; Reuven Cohen & Shlomo Havlin, *Complex Networks*, CUP, 2010; David Easley & Jon Kleinberg, *Networks, Crowds, and Markets*, CUP, 2010; Christian Stegbauer & Roger Häußling (Hrsg.), *Handbuch Netzwerkforschung*, VS Verlag, 2010; Ted Lewis, *Network Science*, Wiley, 2011; Olaf Sporns, *Networks of the Brain*, MIT Press, 2011; John Scott & Peter Carrington (eds.), *Handbook of Social Network Analysis*, Sage, 2011; George Barnett (ed.), *Encyclopedia of Social Networks*, Sage, 2011; Charles Kadushin, *Understanding Social Networks*, OUP, 2012; Christina Prell, *Social Network Analysis*, Sage, 2012; Evangelos Kranakis (ed.), *Advances in Network Analysis and its Applications*, Springer (forthcoming); the Springer book series *Lecture Notes in Social Networks* (2010 ff.); and the journals *Networks* (Wiley, 1971 ff.), *Social Networks* (Elsevier, 1979 ff.), and *Network Science* (CUP, forthcoming). For the related science of (complex) systems, see note 36 and 39. Lest the researcher focusing on social ties (‘edges’, or ‘lines’) downgrades the importance of the human beings

Multidisciplinarity is definitely not the solution to the problem of Western sinology. Changing from the *mile-wide-but-inch-deep* approach of the generalist ('China study') to the *mile-deep-but-inch-wide* approach of juxtaposed partial studies ('Chinese studies'), one gets out of the frying pan into the fire. Sinologists, in Europe, America and elsewhere, should decisively act and make the 'complexity turn' by treating their object of inquiry as a 'field', as a totality of coexisting, mutually interdependent 'facts'. The study of China, particularly of its modernisation, should be **mile-wide-and-mile-deep**, and the key words should be 'coordination' and 'integration'. The dilemma as to whether to take the road to 'knowing nothing about everything' or to 'knowing everything about nothing' in respect of the country will then be broken, and both the wood and the trees will be seen. With philosophy, mathematics, science and technology changing their character, the study of China can and should be lifted onto a higher plane.⁸⁴ If its objective is to make a fine weave, the analysis should be diachronic and synchronic, *i.e.* the study should be longitudinal/historical and transversal/structural.⁸⁵ Or to use musical terms: the performance should be contrapuntal as well as polyphonic. That is to say, those embarking on the study of China should bear in mind the intimate relationship between 'process' (道) and 'pattern' (理), on macro-, meso- and microscale.

Given that each of the cultural (*i.e.* behavioural, cognitive, human, and social) sciences is beginning to realise that without the help of the other, and without a working relationship with the natural sciences (which affect, and are affected by, culture), neither will be able to proceed very far, **the high noon of sinology is yet to come.**⁸⁶ However, that important, indeed crucial point in time can only be reached through – *summa summarum* – the creation of a well-managed Scientific China Research Consortium embedded in, or connected with, the global e-infrastructure, also known as cyberinfrastructure.⁸⁷ Meanwhile, the organisation of an International Conference on the Complexity of China/Countries would be worth considering. May 'the brick [we have] thrown attract jade [from others]' (抛砖引玉) — for the improvement of intercultural and international understanding, that is to say, for more peace in this deeply troubled world!

Rotterdam

January 2013

Postscript

The original version of this iconoclastic article was submitted to, and rejected out of hand by, the editors of:

- *Critical Asian Studies*,

involved ('vertices', or 'nodes'), he/she is advised to read John Levi Martin, *Social Structures*, Princeton University Press, 2009; and idem, *The Explanation of Social Action*, OUP, 2011; along with Harrison White, *Identity and Control: How Social Formations Emerge*, Princeton University Press, 2008. Georg Simmel, Norbert Elias, Talcott Parsons, Peter Berger, Jürgen Habermas, Pierre Bourdieu, Anthony Giddens, Nicos Mouzelis, Margaret Archer, and Roberto Unger are the main theorists addressing the vexed agency-structure problem. See note 56.

⁸⁴ Higher than what Bernhard Fuehrer, Professor at the School of Oriental and African Studies, teaches in his course on 'sinological methodology' (www.soas.ac.uk/staff/staff30963.php); higher than what Geremie Barmé, Professor at the Australian National University, seems to think of (<http://rspas.anu.edu.au/pah/chinaheritageproject/newsinology>); and higher than what Goro Takahashi, Director of the International Center for Chinese Studies (<http://iccs.aichi-u.ac.jp>), and Yukio Hayashi, Director of the Center for Integrated Area Studies (www.cias.kyoto-u.ac.jp), apparently aim at.

⁸⁵ Anthropologists like Claude Lévi-Strauss and Marshal Sahlins consider history and structure conjoined dimensions.

⁸⁶ The reader should compare this prophesy with Paul Demiéville's in 'Henri Maspero et l'avenir des études chinoises', *T'oung Pao*, Vol. 37, 1947, 16-42 (online).

⁸⁷ Reading Khoi Tu's latest book, *Superteams*, exploring <http://ec.europa.eu/research/infrastructures>, and visiting www.arxiv.org/abs/1211.2313 might be inspirational.

- *Journal of Chinese Studies*,
- *Modern Asian Studies*,
- *The China Journal*,
- *The China Quarterly*,
- *The International Journal of Asian Studies*, and
- *The Journal of Asian Studies*.

The chief editor of *China Report*, a peer reviewed academic journal published in New Delhi, informed us that she had read the paper ‘with great interest’, but shrank from publishing it.