

*If there is anything we are serious about, it is neither religion nor learning, but food. We openly acclaim eating as one of the few joys of this human life.*

[Lin Yutang 1935 in *My Country and My People*]

I am on a plane from Shanghai to Shenyang, which took off with a three hours delay. Waiting at Hongqiao airport was grueling; I did not know what to do with myself and my mind was blank. I have that state of mind quite often in Shanghai and attribute it to the city's density both in terms of population and thick air and a personal lack of being in touch with nature, which is my main source for inspiration. Such a state of mind usually tends to change quickly once the airplane has taken off and gained some altitude. Then my mind clears up and I sometimes have the perception that increasing altitude brings me closer to the mind at large. I get inspired and new thoughts or old ones in new compositions trickle into my small mind.

Lately I have had Stephen Johnson's 2010 book "Where Do Good Ideas Come From?" a lot on my mind. I finished it yesterday night, but today it comes back in an unforeseen moment sitting on aisle seat 39C. It's my row's turn and the flight attendant asks about drinks. Window seat 39A orders coffee. Middle seat 39B orders coffee. I order green tea. It is in this moment that I make again a connection between where good ideas come from in China and the massive change in nutritional habits that the population of this country experienced over the last three decades.

I am also inspired in that moment to write a review on Johnson's book, which he crafted from a completely Western - even US only - perspective, while I will add to this review my own partly Eastern perspective after living in China on and off since almost 15 years. Somehow, it seems to me, are all of Johnson's observations made for the Western world only and in particular from the perspective of a nation that has experienced industrialization for more than 150 years. Economic, sociological and political assumptions, which are as far as I can tell correct for the West cannot be made for China and possibly Far East Asia in general. So here we go.

Stephen Johnson analyses in his book the characteristics of spaces in which good ideas are generated and makes some remarkable discoveries, which he categorizes into seven elements conducive to creativity:

- *the adjacent possible*
- *liquid networks*
- *the slow hunch*
- *serendipity*
- *error*
- *exaptation*
- *platforms*

I have rarely read a non-fiction book that so brilliantly cuts through many different disciplines with always one issue in focus. This accomplishment is explained in the book itself with the application of a new version of the enlightenment period  *commonplace notebook*, a software called DEVONthink, which enables modern writers, researchers, teachers, and other well organized people to arrange their information in an easily accessible - and connected - way. I reckon that Johnson made thousands of electronic notes for his journey through *reefs, cities and the web*, the three spaces that he analyses in depth; for they have one thing in common: they are home to extraordinary creativity and innovation.

The book itself is made up out of nine chapters, one for each of the aforementioned idea generating elements, an introduction and a conclusion. The introduction connects the reader with Charles Darwin's journey on the Beagle and the development of his theory on the "Origin of Species" as well as with the concept of the organic *reef* as a biosphere of outstanding creativity. Johnson also introduces a second tool for coming in such a wide range of disciplines to his conclusions, the cross-disciplinary *long zoom* approach. Johnson writes:

*I call that vantage point the long zoom. It can be imagined as a kind of hourglass: As you descend toward the center of the glass, the biological scales contract: from the global, deep time of evolution to the microscopic exchanges of neurons or DNA. At the center of the glass, the perspective shifts from nature to culture, and the scales widen: from individual thoughts and private workspaces to*

*immense cities and global information networks. When we look at the history of innovation from the vantage point of the long zoom, what we find is that unusually generative environments display similar patterns of creativity at multiple scales simultaneously.*

He also gives in the introduction an outline of his concept of innovation, which he puts forth in the concluding chapter: *Analyzing innovation on the scale of individuals and organizations—as the standard textbooks do—distorts our view. It creates a picture of innovation that overstates the role of proprietary research and “survival of the fittest” competition. The long-zoom approach lets us see that openness and connectivity may, in the end, be more valuable to innovation than purely competitive mechanisms.*

I could not agree more with him. But – in the end – it will be a long way to go for humanity at large. In particular if we consider that openness and connectivity increase mainly in the West, but competitive mechanism continue to be the rule in the East. The history of innovation turns here into a history of mankind's evolution.

*From Beijing's elaborate banquet diplomacy and banquet business deals to the ubiquitous greeting of "have you eating yet?" | "chifanlema?" food pervades Chinese political, economic, and cultural life. [Damien Ma and William Adams 2014 in *In a Line behind a Billion People: How Scarcity Will Define China's Ascent in the Next Decade*]*

Whereas Johnson does bring compelling evidence for where creativity happens and which characteristics those spaces share, he does not make much reference to – in the case of mankind – nutrition, with the single exception of 19<sup>th</sup> century coffee houses. But our diet is of such a paramount importance and its impact on our creative potentials often so underestimated, that I would like to add this element to Johnson's seven beforehand.

During a quite ascetic period in my life, which I spent in the Southwest of China more than 10 years ago, I came to understand that man has the everyday choice to live either productive, consumptive or destructive. Periods of long fasting will increase productivity, while periods of overindulgence will reduce productivity and creativity. Excessive consumption will then lead directly to destruction: destruction of one's body, mind and soul. Often not only our own, but also other's.

The destruction of our bodies can be tracked down to every single cell and has been medically described as the [biological cut](#): when a single cell loses its ability to digest toxins naturally, they will be stored within the cell and are then the fertilizer for neoplasm, which then turns into cancer. With the exception of genetically caused or environmental pollution derived cancer, all oncological diseases are essentially diseases of an affluent society. The documentary [planeat](#) includes a diet study, which was carried out in China during the 70ies if I remember correctly. One of the striking findings of that study was that famine and cancer never go hand in hand like affluence and cancer do.

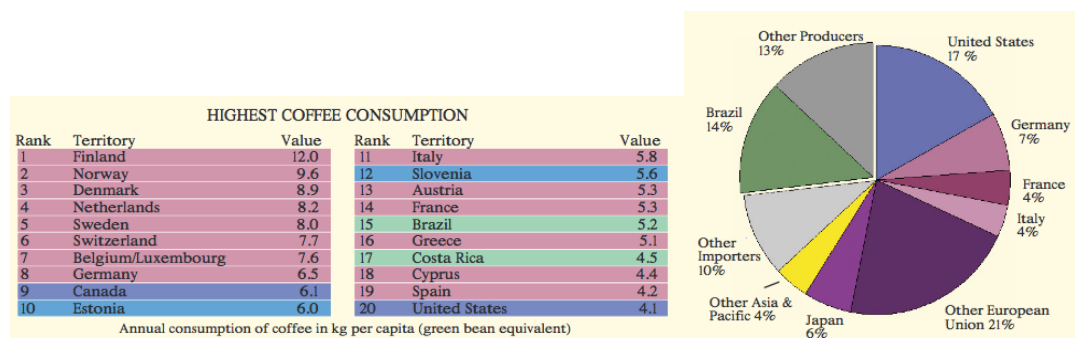
The essential gist of this understanding lies in the notion that our body, and in a holistic view thus also our mind, is a vessel that serves the purpose of channeling energy. Both, Taoists and traditional oriental physicians knew about this relationship between Tao and Te and therefore prescribed herbs or practiced techniques that reinstalled the harmonious flow of energy between the individual and nature. This concept might sound vague, but to everyone who has undergone a weeklong fasting retreat, it is nothing new. I will limit my thoughts on nutrition in this chapter mostly to one substance, which has become in recent years such a splendid symbol of China's growth: coffee.

Johnson's eloquent and entertaining [TED talk](#) saves lazy readers the effort to understand why coffee houses were innovation hot beds, where information spillover used to happen 150 years ago. He remarks quite pointedly that the Western population in the 1850 was essentially all day drunk, because water was not potable. The change from a downer like alcohol to an upper like coffee must not be underestimated. China on the other hand was in the grip of opium at exact the same time which was sold to Chinese merchants by the British in exchange for tea, another, albeit milder, upper. It is a quite interesting picture that I have in my mind comparing the composition of average Western nutrition in the 1850ies and China's in the 1970ies. I assume that broken down to nutrients, vitamins, the amount of carbon hydrate and proteins, we could see a striking similarity.

I have read somewhere else about the connection between nutrition and economic as well as technological development. Niall Ferguson e.g. made in [Civilization](#) a brief comment, David S. Landes mentioned in [The Wealth and Poverty of Nations](#) the different diets of WWI Commonwealth soldiers from England and Australia, the first poorly fed with potatoes and short, the later well fed with mutton and tall. Economists usually underestimate the impact of nutrition on mankind. But there is no other human activity than eating and drinking that has a so far reaching impact on this planet. We eat at least three times a day and parts of our societies go at great length to ship food from one end of the world to the other. A biophysicist named [Gidon Eshel](#) explains in the documentary [planeat](#), what impact our choice of diet has on this planet in a macroeconomic and ecological perspective. It is without doubt vast.

As far as China is concerned in regard to the future of its general diet choice Damian Ma and William Adams summarize as such: *Just as the last three decades of catch-up growth in China created a wealthy middle class, the hundreds of millions of Chinese who will join its ranks in the coming decade are likely to practice catch-up food consumption, particularly of meat. Meat will be an integral part of most meals in a country with a long and resonant cultural fixation on it; vegetarianism seems unlikely to attract mass appeal. Perhaps the expanding middle class's attitudes toward eating meat will shift for ethical or health purposes. Yet developed East Asian economies with sizable middle classes, from Taiwan to Japan, have not moved to vegetarian diets. Incidentally, Chinese food was the original influence for these East Asian food cultures.*

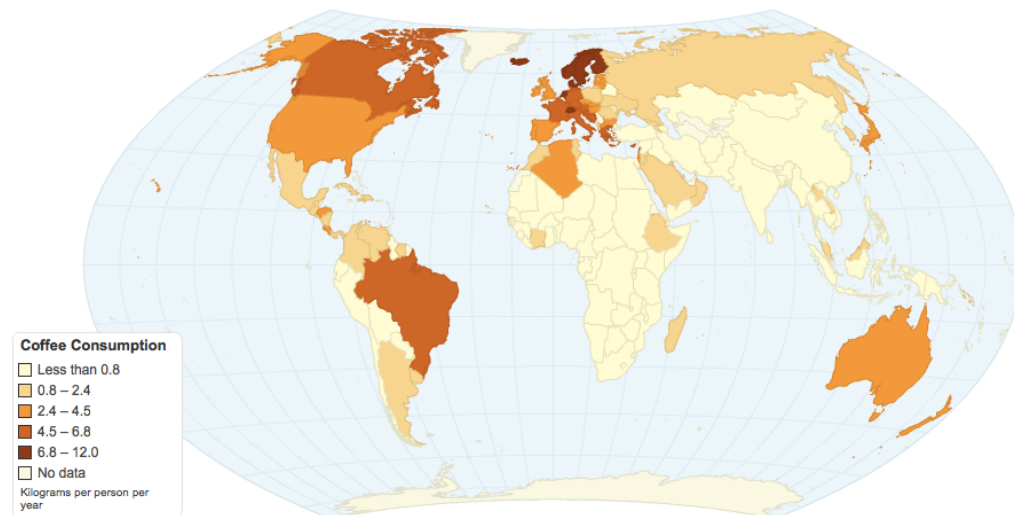
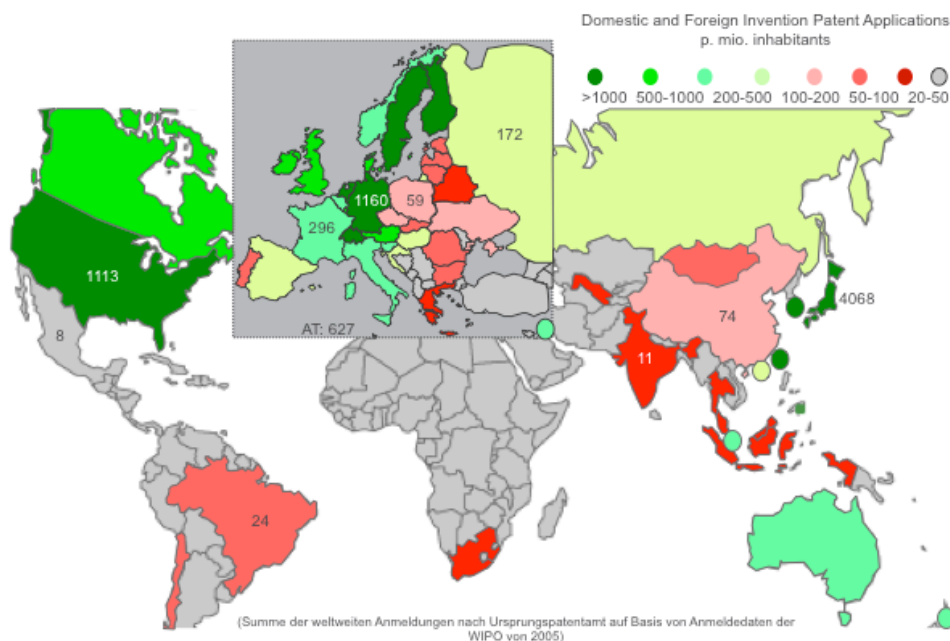
I am sure that similar data like Gidon Eshel's meat consumption extrapolation could be generated with our drinking habits. Just imagine how our coffee consumption changed global agriculture, entire landscapes and related logistics over the last 150 years. We now ship millions of tons of coffee beans from the Southern hemisphere to the Northern, and it is quite striking that the more North you go (on the Northern hemisphere), the more coffee is being drunk. With the exception of a few former European colonies like Algeria or Brazil, that have adopted the coffee drinking habits as part of their heritage, coffee producing countries usually tend to have much lower consumption than advanced industrialized economies of the Northern hemisphere. See below visualization 1.



Visualization 1 - Source: [http://www.worldmapper.org/posters/worldmapper\\_1038\\_coffee\\_consumption\\_ver2.pdf](http://www.worldmapper.org/posters/worldmapper_1038_coffee_consumption_ver2.pdf)

It is moreover quite striking how a world map of coffee consumption matches a world map on invention patent application density. The below map on coffee consumption shows data from 2013. The second map, which has been generated by one of my former colleagues at a technology transfer agency, shows 2005 data on the total number of patent applications registered at the World Intellectual Property Organization (WIPO) per million inhabitants. As far as patent application can be considered one of the last steps of bringing an invention into the legal realm and public domain, this map certainly provides a valid indicator for technological creativity. The correlation between coffee consumption and patent application activity must be more than a coincidence. See below visualization 2 & 3.

## Current Worldwide Annual Coffee Consumption per capita

Visualization 2 - Source: <http://chartsbin.com/view/581>

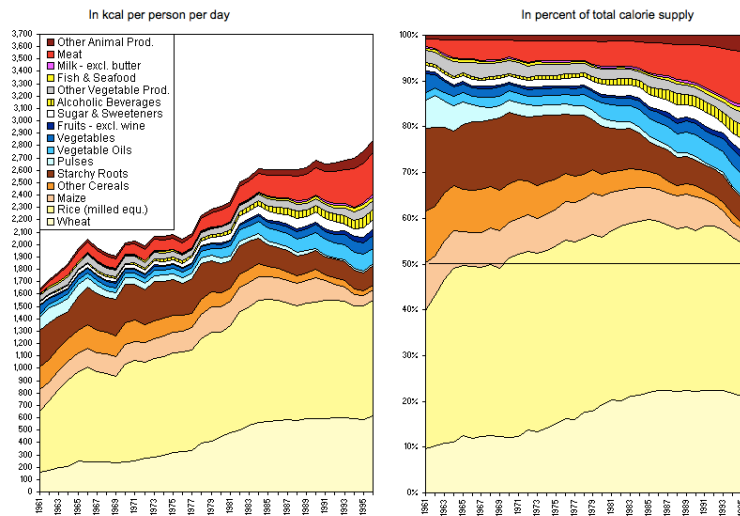
Visualization 3 – Source: private

In the peculiar case of China we witness since 1980 an industrial, financial (as described by Niall Ferguson in [The Ascent of Money](#)) and nutritional revolution condensed within a timeframe of 40 years in a country 3 times the population of Europe and 5 times the US. Visualization 4 from Vienna Institute of Advanced Studies indicates the tremendous change in the Chinese diet starting in 1960. The study sadly stops in the 1990ies but given that all ingredients that are consumed by an affluent society keep growing in volume, the only change since 1995 would be a rapidly growing consumption of coffee, albeit barely visible because caloric value close to zero if not consumed with milk, alcohol and of course sugar.

Visualization 5 shows the diet pattern of several countries during the same period – again no reference to diet elements with low caloric impact, but otherwise considerable effects on human behavior. The increase in cardiovascular diseases, diabetes, all the health yokes of affluent societies, throughout the Chinese society during the last 30 years are clearly a negative result of this incredibly fast diet change.

**Data - Diet Change**

Food Calories Available for Human Consumption in China by Commodity, 1961-1996 ( see: [data](#))



Source: FAO (1999): FAOSTAT. Electronic Database (data downloaded from web: February 16, 1999)

Visualization 4 - Source: [http://webarchive.iiasa.ac.at/Research/SRD/ChinaFood/data/diet/diet\\_6\\_m.htm](http://webarchive.iiasa.ac.at/Research/SRD/ChinaFood/data/diet/diet_6_m.htm)

**Data - Diet Change**

Average Daily Food Calorie Supply in the USA, MDCs, South Korea, Japan, and China, 1994-96

	kcal per Person per Day									
	kcal					in % of total				
	USA	MDCs	S.Korea	Japan	China	USA	MDCs	S.Korea	Japan	China
Grand total	3,624	3,183	3,303	2,898	2,766	100	100	100	100	100
Vegetable products	2,618	2,316	2,799	2,297	2,306	72	73	85	79	83
Animal products	1,006	867	503	600	461	28	27	15	21	17
Cereals (excl. beer)	851	1,009	1,550	1,186	1,646	23	32	47	41	60
Starchy roots	103	137	33	73	154	3	4	1	3	6
Sweeteners	640	396	309	286	71	18	12	9	10	3
Pulses	35	27	44	21	15	1	1	1	1	1
Vegetable oils	546	366	278	282	128	15	11	8	10	5
Vegetables	71	67	148	77	98	2	2	4	3	4
Fruits (excl. wine)	123	93	75	53	42	3	3	2	2	2
Alcoholic Beverages	158	149	255	161	82	4	5	8	6	3
Meat	428	332	264	160	320	12	10	8	6	12
Animal fats	123	152	57	43	35	3	5	2	1	1
Milk	373	279	29	112	15	10	9	1	4	1
Eggs	51	47	36	79	52	1	1	1	3	2
Fish, seafood	29	46	92	194	29	1	1	3	7	1
Other	93	83	133	171	79	3	3	4	6	3

Source: FAOSTAT (1998): Food Balance Sheets

Visualization 5 - Source: [http://webarchive.iiasa.ac.at/Research/SRD/ChinaFood/data/diet/diet\\_6\\_m.htm](http://webarchive.iiasa.ac.at/Research/SRD/ChinaFood/data/diet/diet_6_m.htm)

I am used to presentations and papers that refer to the growing number of Chinese patent applications and research papers, but I always miss the connection to which socially accepted drugs the innovations were made respectively the papers written on. We are always told these stories, whether in movies (e.g. The Doors) or autobiographic accounts (e.g. Aldous Huxley's The Doors of Perception), how great art or music was conceived under the influence of drugs, but we are kept in the believe that our innovation societies are thriving on sobriety only. If I think of the technology transfer agency, which I called my work space for three years, people were down to the bones addicted to caffeine and would lurch to the department's Nespresso machine several times a day for yet another shot. One of my colleagues, a physicist, would send around every month an excel sheet to collect the department's tab orders, and even though we didn't pay him more than the purchase value, he became to be known as our caffeine dealer.

In our Western world where nutritional habits have changed relatively little since WWII, where coffee and now even energy drinks are part of our daily diet, we tend to forget that much of our

societies' development depends on what we eat and drink. I would even go so far as to attribute WWI to the hubris of European national states, which were at the climax of an industrial revolution fueled by coffee. Yes, I dare to make such a far-fetched argument and attribute a war to a general intoxication of respective decision makers.

If we would examine the psychology of coffee, we would find a substance that reacts more on the right hemisphere of our brain, i.e. having an agonistic impact on our individualistic rational thought, but a rather antagonistic effect on the left hemisphere, which is responsible for empathy based thought. The neurobiologist Jill Bolte Taylor explains this general partition of our brain in an intellectual and an emotional hemisphere brilliantly in her book and [TED talk Stroke of Insight](#).

I sit now in a café at Nanchang airport waiting for my next appointment and I listen to two gentlemen both in their early 50ies discussing different types of coffee. One of them seems to be knowledgeable explaining that a latte is made of three parts, one part milk, one part espresso and one part cappuccino. He does not seem to be a barista, but still knows about that brew more than me. Coffee is not only a new foreign product; it's also a status symbol, for the modern individual and for an affluent and modern society.

China has been 1990 in terms of industrial development and average nutrition probably where Europe was in 1910 before WWI. Referring to the German philosopher [Ernst Bloch's](#) concept of time space, everything happens on the time axis in China much faster and one year here and now might have been at the current speed ten years in Europe then. It is therefore not surprising that China's patent office rose during the last decade to the world's largest and its research paper publications became in many disciplines the world's most numerous – coinciding with the increased consumption of caffeine, the socially accepted cocaine, as I like to call it.

If China's coffee consumption continues to grow at current pace it might overtake the US as largest import market within the next decade and will, should it ever reach Japan's average coffee consumption, then have three times the market volume of the US. Considering that both cultures are somehow similar, the economic outlook for Starbucks and Co. looks indeed very bright. The present already does, as Starbucks declared China it's second home market. The last time I had to meet a business associate at Beijing South railway station, he asked me to wait at Starbucks. I asked him which, because there where already 6 outlets.

Similar promising is the outlook for energy drink producers, the next step in legal nutritional supplements, which has already been taken in the West during the last 20 years, but which is about to come in China. I have only a few days ago met the Red Bull business development manager for China who confirmed this trend. Red Bull was only in 2013 approved by the Chinese food and drug administration. Were I a cartoonist to illustrate this essay, I would draw a Taiji master furiously practicing with his students next to a few emptied Red Bull cans and Starbucks cups. It is here in the East where modern substance and traditional thought conflict with each most interestingly.

The [Economist](#) writes: *By volume the output of Chinese science is impressive. Mainland Chinese researchers have published a steadily increasing share of scientific papers in journals included in the prestigious Science Citation Index (SCI—maintained by Thomson Reuters, a publisher). The number grew from a negligible share in 2001 to 9.5% in 2011, second in the world to America, according to a report published by the Institute of Scientific and Technical Information of China. From 2002 to 2012, more than 1m Chinese papers were published in SCI journals; they ranked sixth for the number of times cited by others. Nature, a science journal, reported that in 2012 the number of papers from China in the journal's 18 affiliated research publications rose by 35% from 2011. The journal said this "adds to the growing body of evidence that China is fast becoming a global leader in scientific publishing and scientific research".*

And of course, I may add, a global leader in coffee consumption.