### SHANGHAI JOURNEY

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In December of 2009, CDC will be held in China – in the historically important city of commerce, Shanghai. Shanghai has been a nexus in space and time linking important points and events in the world's oldest civilization. Located in the Yangze River delta, it has served as a gateway connecting the vast and fertile interior to points outside of China. Today, with more than twenty million inhabitants (according to the China Daily—http://www.chinadaily.com.cn/en/doc/2003-12/05/content\_287714.htm), it is the largest city in China, and it ranks as the world's eleventh largest city. Part of the allure of modern Shanghai is the way it blends the urban landscape of ultramodern skyscrapers with a vast collection historically important sites.

#### 1. CIVILIZATION AND TECHNOLOGY IN ANCIENT CHINA

The history of Shanghai is inextricably tied to the much older history of all of China. Extending backwards in time nearly five thousand years, this history is unlike any other. While the great civilizations of Greece, Rome and various middle eastern empires went through standard stages of expansion, imperial influence, and decay, China has risen and fallen repeatedly, only to rise again. It now seems that China is once again on the rise and destined for prominence in the twenty-first century.

There are clear accounts of major accomplishments in science, engineering, and other indicia of civilization that significantly predated similar developments in Europe and the rest of the world. That the Chinese were the first to invent printing was discovered by the British Hungarian explorer Marc Aurel Stein, who traveled to Dunhuang in 1907 where he unearthed (somewhat literally) the *Diamond Sutra*, an early Budhist book that had been printed in 868 AD, essentially 600 years before Gutenberg and the first printed books in Europe. Although there are printed works that are apparently older than this, it is the earliest known work that bears the date of its printing. It was regrettably typical of the bad British behavior of the time that Stein effectively looted the caves of Duhuang. The *Diamond Sutra* now resides in the British Library in London.<sup>1</sup>

As the Control Systems Society prepares to hold its first CDC in China, it is worth mentioning that many centuries before the Chinese invented printing, they had already been engaged in complex and large-scale engineering projects. Very prominent among these was the Dujiangyan Irrigation System, designed and built under the direction of Li Bing in the third century BC. Li

<sup>&</sup>lt;sup>1</sup>Simon Winchester describes Stein's acquisition of the *Diamond Sutra* and other rare documents as follows. Stein paid a Taoist monk who was self-appointed guardian of the archeological treasures of Duhuang, 220 British pounds. In return, he acquired essentially the entire contents of a storage cave. From this trove, "Stein began taking papers away. He took and he took, and he took. And by the time the orgy of taking was over the monk had handed over to the visiting Briton what would be twenty-four wagonloads of papers: thousands and thousands of ancient objects, comprising, everyone now agrees, one of the richest finds in all of archeological history. [4]"

Bing was appointed by the court of the Qin Kingdom <sup>2</sup> as a local governor in Sichuan province toward the end of the Warring States Period (475-221 BC) What he undertook was arguably the largest public works project in recorded history up to that time. There was a twofold problem related to regularly occurring floods in the region. The Min River overflowed its banks, causing widespread devastation pretty much on a yearly basis. At the same time, the river was needed as a route for military transport as the Qin government sought to solidify its control over the region. Li Bing had the extremely clever idea of building a spillway and storage dam to divert excess river water when needed. To realize the idea, he needed to cut through a massive amount of rock. The project was begun in 242 BC, more than a thousand years before Chinese Taoist monks invented gunpowder in the ninth century AD. To break through the mountain, Li Bing had his work crews "burn piles of hay on the surface of the rocks to make them hot, and then pour cold water to cool them down rapidly," letting the rapid contraction cause them to fracture. ([4]) It took Li Bing fourteen years to complete the Dujiangyan Irrigation project. The accomplishment is stunning, given the primitive tools he had to work with. It is no less remarkable that the system has remained in continuous operation and continues to function at the present time.<sup>3</sup>

# 2. HISTORIC SHANGHAI

Against the backdrop of such early developments, the history of Shanghai itself unfolds. During the period of the Western Han dynasty, around 100 BC, China established a trade route from Asia to the Mediteranean that enabled the transport of goods—especially luxuries like silk and other fabrics. For many centuries, what become known as the Silk Road was the primary means by which goods and ideas were exchanged with Europe and the Middle East. Thus it was not until the late European middle ages that sea trade became a widely used alternative to the Silk Road, and coastal settlements like Shanghai were transformed from fishing villages into centers of commerce. Shanghai was officially upgraded from the status of fishing village to market town in 1074 by the Government of the Northern Song Dynasty, and it's stature was increased to that of a county in 1292. ([1]) The Chinese rendering of Shanghai is



The first character "shang" means "on", and the second, "hai," means "sea." Before the time of the Song Dynasty (See Table.), Shanghai was literally on the East China Sea, but after several sea dikes were constructed, the coast receded to the east. From the thirteenth century to the present, the sea coast has not been visible from Shanghai, and visitors to China have been

<sup>&</sup>lt;sup>2</sup>The Qin dynasty (as opposed to the Qin Kingdom) was in power only a short time, from 221 to 207 BC. It was enormously important, however, and the word China is in fact derived from the word Qin. The first Qin Emperor, Qin Shi Huang, was also the first emperor of China. Prior to the Qin Dynasty, Chinese rulers had been called kings.

 $<sup>^{3}</sup>$ At this writing, a good photo of part of the system may be found at http://en.wikipedia.org/wiki/Image:Dujiang\_Weir.jpg.

reminded of the ocean's proximity only by the constant stream of ships that ply the local river ways.

TIMELINE

States, Kingdoms, and Dynasties of China		
	Xia Kingdom	2000-1520 BC
	Shang Kingdom	1520-1027 BC
	Western Zhou	1027 -771 BC
	Eastern Zhou	771-221 BC
FIRST UNIFICATION	QIN	221-207 BC
	WESTERN HAN	206 BC - 9 AD
	Xin interregnum	9 - 25 AD
	EASTERN HAN	25 - 220 AD
First Partition	Three Kingdoms	220 - 265 AD
SECOND UNIFICATION	WESTERN JIN	265 - 316 AD
	EASTERN JIN	317- 420 AD
Second Partition	Southern Song	420-478 AD
	Southern Qi	479 - 501 AD
	Southern Lian	502-556 AD
	Southern Chen	557 - 588 AD
	Northern Wei	386 -553 AD
	Eastern Wei	534 - 549AD
	Western Wei	535-557 AD
	Northern Qi	550 - 577 AD
	Northern Zhou	577 - 588 AD
THIRD UNIFICATION	SUI	580-618 AD
	TANG	618 - 907 AD
Third Partition	Five Dynasties	907-960 AD
	Ten Kingdoms	907 - 979 AD
FOURTH UNIFICATION	SONG	960 -1279
	LIAO	916-1125 AD
	WESTERN XIA	1038 -1227 AD
	JIN (Tartar)	1115-1234 AD
	YUAN (Mongol)	1279-1368 AD
	MING	1368-1644 AD
	QING	1644-1911 AD
	REPUBLIC OF CHINA	1911 -1949 AD
	PEOPLE'S REPUBLIC	1949 - Present

—Source: Simon Winchester, [4]

As the above examples illustrate, by the time Shanghai became more than a fishing village, the larger China had developed a culturally and technologically advanced civilization that led the world in many ways. From its initial emergence as a center of water-borne commerce, Shanghai's growth and development was alternately helped and hurt by changing trade policies of the central Chinese government. In particular, the period of the Ming Dynasty (See the table of dynasties.) was bleak. In the late 1300's and early 1400', official trade policies routed coastal shipping to a different port (Lie He Kou), and waterways that bypassed Shanghai were constructed. A more serious blow to the city was the decision around 1450 to discourage longdistance navigation. One of the great mysteries of Chinese history is tied to the seven voyages of Zheng He between the years 1405 and 1433. These were sponsored by the great Ming emperor Yongle. History seems to be unclear as to the exact extent of Admiral Zheng He's voyages, but they certainly included visits to India, Ceylon (Sri Lanka), the Middle East, and Africa—from which he brought back a giraffe as a gift for the Emperor. Apparently, it terrified the Emperor, and it may have been a contributing factor in the fateful government decision to curtail all longdistance sea voyages. Some extravagant claims have been made about Zheng He reaching the America's, but there is no record of this. Despite the voyages having discovered important water routes and having returned considerable foreign treasure to the Ming emperor, it was decreed in 1424 that all voyages of the treasure ships should be stopped and that no more ocean-going ships should be constructed. Some of the records of Zheng He's journeys were removed from government archives in 1477 and presumably lost. After this, all long-distance voyages were stopped. The Ming maritime trade policies ushered in a 300-year decline in the fortunes of Shanghai. ([1])

While the Ming Dynasty's restrictions on maritime trade took a toll on Shanghai's prosperity and growth, they also coincided with a profound change in China itself. During the waning years of the Ming Dynasty and throughout the Qing dynasty (1644-1911), China's remarkable creativity stagnated. Chinese leadership in technological innovation was surpassed by Western Europe. The question of why the industrial revolution took place in Europe with no participation at all from the historically more creative Chinese has become known as the "Needham Question"—after Joseph Needham ([3]). (A large literature on the Needham Question can be found via Google<sup>TM</sup>.) Needham's question drove the research and writing of his magisterial 15,000 page, twenty-four volume Science and Civilization in China<sup>4</sup>, and although he discusses it at some length in his volumes, he went to his grave without an answer. There is ongoing debate, with some scholars arguing that the Needham Question is less interesting than the more positively posed question of why the industrial revolution did occur in Europe at this time. One of my Chinese colleagues believes that China may have stagnated under the oppressive weight of political corruption that was rampant in the Qing Dynasty.

Because he died in 1995, Joseph Needham he was unable to witness the enormous extent of the changes that have occurred in modern China. I am envious of colleagues who were able to visit Chine before and immediately after the Cultural Revolution, because they saw the baseline in terms of which contemporary China can best be understood. On numerous recent China trips with colleagues who are helping to organize the 2009 Conference on Decision and Control, I have seen the phenomenal year-to-year growth that is propelling China from the Third World

<sup>&</sup>lt;sup>4</sup>A compelling account of Needham's research on China and his lifetime of writing the book is given in Simon Winchester's recent book [4].

toward the top of the First World in only a few decades. The natural follow-on to the Needham Question is "Will China now re-emerge as the world's leading civilization?"

### 3. SHANGHAI TODAY

Modern Shanghai embodies and reflects all aspects of China's resurgence.<sup>5</sup> It is a huge and rapidly growing metropolis. The "natural" population growth in Shanghai—i.e. the population growth due to new births—was negative for many years, but at the same time, the growth due to immigration was remarkably high—reaching 23% between 1990 and 2000. The rate of new construction is also extraordinary, and visitors who return to Shanghai after only a year's absence may become disoriented by the presence of so many buildings that did not exist at the time of their previous visit. The energy and vitality that one feels today in China's largest city is breathtaking.

When I first visited China, I was struck by the large number of icons venerating Mao Zedong virtually everywhere I went. It is fair to say that Mao remains a controversial figure, but the extent to which he is revered in modern China is huge. One finds statues, commemorative plaques, books, portraits, and everywhere in the streets there are people selling Chairman Mao watches for 100 yuan—or whatever you manage to negotiate. The Chinese are well aware of the lethal hardships suffered by millions during the Great Leap Forward and later during the Cultural Revolution. Nevertheless, Mao is regarded as a modern liberator of China. It was his leadership that allowed the Chinese to throw off the shackles of European colonialism and the systemic corruption that was entrenched from the Qing dynasty.

Shanghai played an important role in much of the important transformations that have taken place in modern China. It was probably no accident that the first Congress of the Chinese Communist Party (CPC) was held in Shanghai (from July 23-31, 1921). The location of this secret meeting has become a shrine, and it is certainly an interesting tourist site. The building and the area around it have been opulently restored. To enhance it's attractiveness, government officials decided to surround the site with amenities that would be universally attractive to wealthy foreign tourists and an increasingly prosperous local population as well. Thus, the original meeting-place at 76 Xing Ye Lu sits at the edge of a cluster of shops and restaurants known as Xin Tian Di ("New Heaven and Earth"). The old meeting site has undergone a great deal of renovation since I first visited in 2003. A visitor will see beautifully recreated life-scale models of the early meetings and old movies of the turbulent years of Japanese occupation and subsequent conflict with the Chinese Nationalists. The visitor will also find nicely framed posters containing a good deal of historical propaganda. After indulging in this carefully scripted history of proletarian struggle, you can go merely around the corner to purchase a Cartier watch and then sit down in an elegant restaurant to enjoy exquisite fusion cuisine with a bottle of expensive European or Australian wine.

<sup>&</sup>lt;sup>5</sup>Today, with a land area covering 6,340 square kilometers and a population of 18 million people, Shanghai has become the largest economic center in China and an important port city. It has maintained a GDP growth rate of over 10 percent in the last 11 years. More than 100 foreign countries and regions have investments in some 30,000 local projects, taking advantage of the 74 deep-water berths and 20 international container piers at the Shanghai Port. The Yangshan International Deep Water Port that is currently under construction is expected to give a modern twist to the port city. Hongqiao and Pudong International airports link Shanghai with 141 cities in 29 foreign countries and regions everyday.—Source: The website of the Office of the Mayor of Shanghai

### 4. CITY SIGHTS AND NEIGHBORHOODS

There is so much to see in China's largest city that it is hard to make the necessary choices of what to leave out of a short article like this. With difficulty, I shall exercise restraint and describe only things with which I have had personal experience. I refer to the many guidebooks for more information.

# . The Shanghai Ghetto

The Shanghai ghetto was situated in the Hongkou District of Japanese-occupied Shanghai, where about 20,000 European Jews sought refuge from Nazi persecution during World War II. Some reminders of the period can still be found, such as the Ohel Moishe Synagogue now located at No.62, Changyang Road. Built by Russian Jews in 1907, this served as a refugee meeting place throughout the war years. The hospitality Shanghai showed to Jewish refugees at this time was remarkable in several ways. By the late 1930's, when Jews realized that they were in mortal danger in Europe, most countries in the world, including the United States, would not permit them entry without difficult-to-obtain travel documents. Shanghai was the only place in the world that did not require a visa. That Shanghai proved to be a life-saving refuge for European Jews also depended on the occupying power Japan tolerating their presence. Japan had invaded China in 1937 and although there were many incidents of the Chinese being treated with considerable cruelty, the Japanese largely ignored the Jews of Shanghai. Jews who had been long-time residents—such as those from Russia and Iraq—were ignored, while those who had arrived from places like Germany, Austria, and Poland to escape the Nazi's were labeled "stateless refugees" and forced to live in what became known as the Shanghai Ghetto. The conditions were such that the residents of the ghetto could maintain their traditions and lifestyle, and while life was not easy, everyone survived. A compelling documentary entitled Shanghai Ghetto uses actual film footage of the time to depict on the passage to Shanghai and daily life in the ghetto. It is available from the website http://www.shanghaighetto.com.

# The Shanghai Museum and People's Square

For the first-time visitor to China, a clear impression of the extraordinarily rich cultural history of the place is quickly gleaned from a visit to the **Shanghai Museum** in People's Square. Here one finds exquisite porcelains that are perfectly preserved after many centuries. Indeed, many of the apparently flawless ceramics are more than a thousand years old, and there are early pottery fragments that date to 9000 BC. Early painting, calligraphy, and bronze also abounds, and with one of the most gorgeous museum shops anywhere in the world, the Shanghai Museum must be seen on any visit to Shanghai. Shaped and colored like a copper pot, the Museum is located in the beautiful People's Square, which is a great destination in its own right for those seeking to escape the high-energy bustle of Shanghai's city streets. The address is No. 201 Ren Min Da Dao Shanghai 200003, Phone: (021) 6372-3500.

### The Shanghai Urban Planning Exhibition Center

Not far from the Shanghai Museum, one can find a similarly impressive edifice that houses the Shanghai Urban Planning Exhibition Center. A question that occurs to all visitors to Shanghai is whether the explosive growth is guided by any kind of a plan, and the exhibits in the Exhibition Center answer the question in a dramatically affirmative way. There is much to see, but the thing that is so special is the 1000 square meter diorama that is a scale model of what urban Shanghai is projected to be in 2020. It is stunning in its level of detail and is a great place for the first time visitor to get her bearings. The address is 100 Ren Min Da Dao, Shanghai 200003, Phone: (021) 6372-2077. After visiting the Urban Planning Exhibition and the Shanghai Museum, if you have any remaining energy, another place worth visiting in People's Square is the Museum of Contemporary Art.

## The French Concession, the H.E. Morris Estate, and the Rui Jin Da Sha

European colonial influences can be seen in the architecture and urban design of many neighborhoods in Shanghai. Nowhere is this more true than in the French Concession, where the streets frequently remind me of Paris. Shanghai has been a very tolerant place throughout its history, and one of the most tolerant parts of Shanghai has been the French Concession. (As mentioned above, it is not a coincidence that the first Congress of the Chinese Communist Party was held in the French Concession—in 1921.) H.E. Morris Jr., who inherited the North China Daily News upon his father's death in 1920, built an estate in the French Concession because local ordinances allowed him to also build a greyhound track. The 1930s colonial-style mansion was occupied by members of the Morris family until 1952. After Mao Zedong launched the infamous Cultural Revolution in 1966, many of the brutal excesses were directed by Mao's wife Jiang Qing and other members of the infamous Gang of Four. Before she was arrested in 1976, Jian Qing found the Morris Mansion to be a comfortable place to live and to conduct the daily business of running the Cultural Revolution. Today the Morris Mansion has become the up-market Rui Jin Hotel, where guest-rooms go for upwards of \$400 per night. The hotel is quite a jewel that is beautifully set in a large urban garden. The address is 118 Ruijin Er Lu Shanghai 200020 China (021) 6472-5222; www.ruijinhotelsh.com.

## . Yu Yuan

Shanghai is not an ancient city by Chinese standards, but there are places where the historical heritage—if not the place itself—is several centuries old. Just south of the city center, bordered by Renmin Lu and Zhongshan Lu is the Yu Yuan Garden. The garden was conceived by Pan Yun Duan, a government official during the Ming Dynasty. Pan apparently built the garden to serve as a retirement gift for his father, who had abdicated his government position so that Pan could take it up. The 20,000 square meter park was laid out in 1559 and completed in 1577. Throughout its history, Shanghai has undergone almost constant rebuilding of everything, and the Yu Yuan Garden is no exception. It has repeatedly fallen into states of neglect and dilapidation—only to be revived and reconstructed. The Garden in its present form is the result of a five-year reconstruction project started in 1956. Much more recently, shopping arcades have been added—using roughly similar architectural design—and a trip to the Yu Garden Shopping Arcade provides the opportunity to buy all sorts of Chinese crafts and recently manufactured antiques. If you go to the area, you should plan time for a visit to the Garden itself. This is accessible by crossing the Bridge of Nine Turnings to arrive at the Garden Gate. Immediately after crossing the bridge, whose turnings are designed to help shed evil spirits, one comes to the Hu Xin Ting Teahouse, the oldest traditional teahouse in Shanghai. A perfect visit to the Yu Yuan complex includes a little shopping, followed by a rejuvenating visit to the Garden, and concluded by traditional Chinese tea.

### . The Bund

Probably the best known tourist destination in Shanghai is the Bund, which features a string of early twentieth century European style buildings on the west bank of the Huangpu River. Bund is German for confederation, but according to Peter Hibbard, Bund is actually derived from the Hindustani word band, meaning artificial embankment. Prior to the nineteenth century, the Huangpu riverbank was nothing more than a strip of mud. The nineteenth and early twentieth centuries comprised a period of sustained building and development that resulted in the riverbank being replaced by an imposing quay along which more than twenty buildings of European architecture were constructed to house the major colonial financial institutions of the day. Throughout the twentieth century, the buildings along the Bund have defined the signature image of Shanghai. Despite their foreign origin and the fact that they could be seen as symbols of China's humiliation at the hands of Western imperialists, they have all been given heritage plaques by the Shanghai Municipal Government, and zoning rules for the area prohibit construction of the sky scrapers that continue to sprout up throughout other parts of the city. As prosperity has increased in Shanghai over the past few decades, many of the buildings of the Bund have been restored to house upscale retail, restaurants, and other attractions that appeal to tourists and newly prosperous Chinese alike. While Bar Rouge at 18 on the Bund (the former Chartered Bank of India, Australia, and China), New Heights at 3 on the Bund (the former Union Building), and the very fashionable Jean Georges also at 3 on the Bund are as attractive to western tastes as any eating and drinking establishments in the world, the type of restoration they represent has become a topic of heated debate among people who want a voice in the planning of Shanghai's future. It is certainly true that the renovated interiors of building on the Bund bear no resemblance whatever to their design and function of 75 years ago. Nevertheless, these establishments are now an important part of the good life in Shanghai, and it is ever so pleasant to sip your favorite wine or cocktail and look out on the constant traffic on the Huangpu River and watch the light show of the buildings in Pudong on the far side.

# . The Oriental Pearl TV Tower and the Shanghai History Museum

More than any other contemporary structure, the Oriental Pearl Radio tower is the symbol of resurgent Shanghai. It is open to the public, and many people feel the same need to visit the tower that tourists in New York feel about visiting the Empire State Building. Shanghai is frequently covered by haze, and for this reason, a trip to the upper levels of the tower may prove disappointing. There is also a little too much kitsch on sale for my taste. There is a part of the Tower that really should be seen, however, and this is the Shanghai History Museum located in the base. The Museum emphasizes history of the colonial period from 1860 to 1949, and it features a wide array of artifacts and diorama's of the period. There are recreations of street scenes from all over Shanghai, and one can see images of life as it may have occurred on the Bund, Nanjing Lu, and the streets of the French Concession.

### . Chinese Hospitality and the World's Most Gracious Hotel

Imagine you have taken a fourteen hour flight from an American gateway city and your plane has just landed at the new multi-biliion dollar Pudong International Airport—about forty-five minutes by expressway from Shanghai. You are met at the airport by a car and driver attached to the Pudong Shangri-La Hotel, and as you leave the city's outskirts and start to negotiate the

increasingly complex urban street system, you feel so happy that you are not driving yourself. Upon arriving at the hotel, you are greeted at curbside by the manager on duty at the time. Because it's not your first visit, you are welcomed back and immediately shown to your room. The details of check-in are deferred until you have had a chance to relax and refresh. You are given a small gift, and as your luggage is being deposited, a pleasant young woman in a beautiful Shanghai Tang dress asks if she can offer you tea with fresh jasmine flowers.

The Pudong Shangri-La Hotel is a five-star hotel that is part of a chain based in Hong Kong. All Shangri-La hotels are excellent, but the one in Pudong is truly special. It is perhaps the great tradition of hospitality in Shanghai, but in any case, this Shangri-La seems a most worthy cite for the CDC events that we plan to hold there.

Just as the signature image of colonial Shanghai was the Bund, the signature image of modern Shanghai is Pudong—with its massive gleaming modern architecture. None of the buildings that define the modern Pudong skyline existed prior to 1990, and now, according to an airline magazine piece I saw a couple of years ago, a new building of more than 30 stories is completed in Shanghai every twelve days, and this has been the case for almost the past decade. Some of the managers of the Shangri-La and the Shanghai International Convention Center, where CDC 2009 will be held, were actually members of the teams that oversaw the original construction of these facilities.

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