In 1944, the TVA’s first director, David Lilienthal wrote his book TVA (Tennessee Valley Authority): “Democracy on the March.” In the preface, Lilienthal stated:

There is almost nothing, however fantastic, that (given competent organization) a team of engineers, scientists, and administrators cannot do today. Impossible things can be done, are being done, in this mid-twentieth century.

The one American achievement which has most appealed to Chinese observers as an American model for China to follow is the regional development program of the Tennessee Valley Authority. TVA makes sense in China. The use of public funds for big public works and water control, the government and the individual citizen cooperating in the application of modern technology to the ancient problems of the soil, the state helping the small man to help himself—this is the most clear-cut democratic ideal in Asia.

—John Fairbanks,
The United States and China, 1948

The first time I traveled along the Yangtze (known in China as the Changjiang, or long river) I was only five years old and the houseboat carrying my family and the boatmen was being dragged up river at the end of a long rope pulled by many shirtless coolies who carefully trod a tiny path cut into the cliff face at the side of the river. The path was centuries old and had been used by such rope pullers many thousands of times. Each night our boat docked at one of the towns near the river bank so that we could be safe from bandits who operated at night along the course of the river. Our journey from Hankow to Chongqing took a number of days.

There are only a handful of houseboats and sampans on this river today. Steamships now take tourists and business people through the Yangtze Gorges. One of the benefits of this modernization in shipping is the saving of lives for many rope pullers, who previously often slipped from the path during rainstorms and fell into the river hundreds of feet below.

China has even completed a dam across the Yangtze— the Three Gorges Dam—the largest such dam in the world. It is a massive engineering achievement. But there are many critics in the United States and elsewhere who say that China was foolish to build this dam and that it is bound to lead to major disasters. They believe that this dam, like all other big dams around the world constructed within the last fifty years, will soon display unanticipated problems.

The Yangtze is the longest river in Asia and the third longest in the world, running 6,211 kilometers (3,860 miles) from Qinghai Province in the Tibetan Plateau to the East China Sea near Shanghai. The river’s watershed is massive, spanning 1,722,155 sq.km (1,070,147 sq. miles) with nearly 400 million inhabitants.
above sea level. This height causes the river water to flow rapidly for most of its 3,434-mile length, and the flow brings with it large amounts of sediment and even big rocks as moves toward the ocean. Much of the city of Shanghai, in fact, stands on the delta that has been created by the river sediment.

Interestingly, two other major rivers of Asia start at the same source as the Yangtze: the Mekong and the Salween. All three rivers follow much the same route as they flow southwards from the glacier, but instead of joining together they suddenly diverge. The Mekong twists and turns as it goes southward through Vietnam and into the South China Sea. The Salween, by a series of jerks to the west, flows southwards to reach the Bay of Bengal. The Yangtze, some thousand miles downstream, suddenly executes a remarkable hairpin bend as the water slams head-on into a limestone mountain that forces the course of the river water to turn east and flow across central China all the way to the Pacific Ocean. The river effectively divides China north and south. Local mythology has it that winter weather north of the river is cold, while the weather south of the river is warm. Thus hotels north of the river will likely have central heating while those just a mile or so on the other side have none.

The Yangtze has more than 700 tributaries and the quantity of its water is so enormous that it has flooded disastrously more than 1,000 times, including once in 1931 when an estimated 145,000 people were drowned. Such flooding usually happens in late summer as a result of monsoon rains and mountain snow-melt. The 1931 flood covered 186 counties and cities. A flood in 1998, while the dam was under construction, lasted from the middle of June to the beginning of September.

To tame the river and control its flooding, Dr. Sun Yat Sen suggested in 1919 that a dam be erected across the Yangtze. However it was not until 1994 that the Three Gorges Dam project was actually started. Workers numbering between 20,000 and 30,000 have been working in shifts on a 24-hour schedule ever since. A total of 1.3 million people have been relocated in new homes to make way for the dam and its huge reservoir.

The Three Gorges Dam stands at Sandouping in Hubei Province. It has become a symbol of China’s modernization efforts. It is 7,575 feet long and 594 feet high. The reservoir behind the dam extends 410 miles up the Yangtze (about half the length of California) to the far inland city of Chongqing. The dam includes ship locks to lift large ocean-going freighters from the lower side of the dam to the upper so that these ships can travel all the way from Shanghai to Chongqing.

The river channel had to be deepened at various places to accommodate such ships. The dam also has some 32 main electric generators, each with a capacity of 700 MW, that produce a generating capacity of 22,500 MW.

Engineers in the West tend to view dams mainly as electricity generating structures. They say that China would have been much wiser to put many small dams along the tributaries of the Yangtze instead of constructing just one big structure. Many smaller units, they say, would produce just as much electricity for China as the huge Three Gorges Dam. This, of course, is true but electricity production is a secondary attribute of this dam. The main reason for its construction is flood control. And so far this is succeeding.

Another aim is to divert water to the parched areas of north China. In October 2009 the Chinese workers began to construct three canals that will eventually carry water from southern, central, and western China to the arid north. One branch will stretch from the Yangtze River all the way to Beijing. To accomplish this diversion, 330,000 more people in Henan and Hubei provinces are being moved from their homes near the Danjiangkou reservoir and resettled elsewhere. This is where the reservoir is being enlarged and where a sluice is being built in order to divert the water from the Yangtze and its tributaries.

Critics say that even when the three routes are completed the diversion still will not satisfy northern China’s water demands. And they say the massive project will likely cause all sorts of environmental damage, not the least of which will be a pile up of huge amounts of silt as the water flow brings this sediment to the dam. However the Chinese engineers say they have solved this problem by installing a system that flushes out the silt as it accumulates.

Filling of the Danjiangkou reservoir with water has not only covered farms and some villages, it
has also drowned many ancient temples, grave sites, and other cultural relics that could not be moved or relocated. It is, of course, impossible to estimate how much of a loss this may be to China's historical record, but clearly the Chinese have decided that saving the lives of flood victims and creating a ship navigation system that extends from the interior of the country to the Pacific coast is far more important than protecting some ancient artifacts.

The families that have been relocated or are still being moved have been allocated homes and farmland in newly-built and more substantial villages. They have also been given annual subsidies of about $88. But there have been complaints that farmers are being offered less than half the land they formerly cultivated. And many of these farmers are unhappy with the new arrangement. It is always difficult to move to new surroundings and especially so when one's family for centuries past lived in the same place and farmed the same land.

Thus only time will tell how wise it was to decide to build the Three Gorges Dam. But as the critics wait for what they are sure will be a major disaster, big Chinese ships move up and down the Yangtze river transporting trucks and heavy industrial machinery from Chongqing out into the Pacific Ocean and then on to many parts of the world.

Foster Stockwell grew up in China (12 years) first in Fujian Province and then in Szechuan Province (city of Chengdu) as the son of American missionaries. He returned to the U.S. just before the Japanese attacked Pearl Harbor in 1941. After completing college, he became a writer and editor working for various magazines, newspaper, and book publishers. For 20 years he was a senior editor for World Book Encyclopedia in Chicago, and for 10 years he was the publishing director for China Books and Periodicals in San Francisco. Mr Stockwell has written six published books, two of which are about China (Religion in China Today, and Westerners in China) and has traveled to China more than 15 times over the past 25 years, working as a publisher and consultant for the Foreign Languages Press in Beijing. He is now retired and living in Des Moines, Washington.

EDITOR'S NOTE:
The dam was originally envisioned by Sun Yat-sen in The International Development of China, in 1919. It was stated that the construction of a dam capable of generating 30 million horsepower (22,371 MW of electricity) was possible downstream of the Three Gorges. In 1932, the Nationalist government, led by Chiang Kai-shek, began preliminary work on plans for a dam in the Three Gorges. Then, in 1939, Japanese military forces occupied Yichang and surveyed the area. A design, the Otani plan, was completed for the dam in anticipation of a Japanese victory over China. In 1944, involvement from the United States began when the then Bureau of Reclamation chief designing engineer, John L. Savage surveyed the area and drew up a dam proposal for the ‘Yangtze River Project’. Around 54 Chinese engineers were sent to the U.S. for training. Some exploration, survey, economic study, and design work was done, but the government, in the midst of the Chinese Civil War, halted work in 1947. During the 1980s, plans were revived. The dam was approved by the National People's Congress in 1992.

The construction started on December 14, 1994. The dam was expected to be fully operational in 2009, but due to additional projects such as the underground power plant with six additional generators, and due to the complexity of the ship lift, the dam is not expected to become fully operational until about 2011. The dam raised the water level the third time to 172.5 meters by the end of 2008.

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