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Two Book Reviews

1491: New Revelations of the Americas Before Columbus

1493: Uncovering the New World Columbus Created

By Charles C. Mann

At some point in their education, nearly every grade school student has memorized the couplet:

*In fourteen hundred and ninety-two,
Columbus sailed the ocean blue.*

But just what were the Americas like before Columbus and what were the longer-term results that ensued after 1492, not just in the Americas, but in the rest of the world as well. Journalist Charles C. Mann provides answers to these questions in two books entitled *1491: New Revelations of the Americas before Columbus*, and *1493: Uncovering the New World Columbus Created*.

Because no Europeans experienced conditions in the Americas before 1492, it is necessary to look at what was found after the arrival of Europeans and attempt to form pictures. Obviously, attempting to form a completed picture, considering the multitude of cultures from the Inuit in northern Canada to the Fuegians in Tierra del Fuego, would be a gargantuan task. Sensibly, in 1491, Mann has zeroed in on just a few. These include the relationships between the Wampanoag and the Pilgrims in what became New England, the adventures of Pizarro among the Inca in Peru, the Maya civilization, the Triple Alliance (Aztecs), Amazonia, the Clovis Culture, and the Five Nations (Seneca, Cayuga, Onondaga, Oneida, and Mohawk) to name the main ones. Space in this review does not permit a detailed chronicle of the events in each of these civilizations, but I would like to zero in on one, the Inca in Peru and their invasion by Francisco Pizarro.

In 1491 the Inca ruled the greatest empire on earth, extending over thirty-two degrees of latitude, bigger even than the Ming dynasty in China. And it accomplished something very few empires do, it managed to eradicate hunger by storing food in warehouses for periods of shortages. Also, there was no system of slavery and no one paid taxes. All ordinary citizens were required to contribute some of their time to help keep the economy operating. But this empire lasted barely a hundred years before being smashed by Spain.

In 1532, the Inca learned that some pale, hairy people, who sat on large beasts, had landed on the coast. These foreigners were Spaniards led by Francisco Pizarro. He landed with only 168 men, 62 horses and a few cannons. A battle ensued and the Spanish firing cannons, wearing armour and riding horses defeated an Inka army eighty thousand strong. Pizarro then negotiated with the Inca leader Atawallpa to hand over a treasure trove of gold, silver and jewelry, which he shipped off to Spain, in exchange for a truce. Then Pizarro reneged, killed Atawallpa and proceeded to overrun the Inca territory. But in the end, it was not Spanish military superiority that killed off the large army of the Inca's, it was a silent invader, smallpox. And the same catastrophe occurred all over the Americas, making it almost impossible to determine even a ballpark estimate of the number of humans living in North, Central and South America before Columbus arrived.

A lot of effort has been devoted attempting to solve this puzzling question as well as one other one. When did humans first come to America from east Asia across the Bering Strait land bridge? Demographic experts and other scholars are having difficulty finding consensus on both questions. Some estimate that as many as 95% of the population was decimated by smallpox and other European or tropical diseases. Other estimates are lower, but not by much. In any case it is certain that the large drop in population that occurred made it easier for old world settlers to take over native lands with less bloodshed.

The jury is still out on any sort of consensus in answering these two questions. Estimates of the pre-Columbian population range from 8 million to 100 million. Some demographers split the difference and settle on 50 million. And there is also a range on the date that humans first crossed the land bridge at the Bering Strait. Many say between 13,000 and 15,000 years ago, but one or two say it could be as long as 30,000 years ago.

But these residents of the Americas were not savages as is sometimes suggested. They all had cultures and civilizations of their own and some of these civilizations left behind impressive stone structures in what is now Mexico, Guatemala and Peru. See the pictures below.



Mayan Temple at Tikal, Guatemala



Pyramid at Teotihuacan, Mexico



Machu Picchu, Peru



City of Tenochtitlan, Mexico

The Mayan temple at Tikal was probably constructed around 500 CE. The pyramid at Teotihuacan is thought to be about 2000 years old. Machu Picchu is much newer. Building began in 1450. It was not discovered until 1911. The city of Tenochtitlan was founded in 1325. All of these accomplishments are very impressive. But only one of the cultures, the Mayans, developed a system of writing.

We know that it was not until about 10,000 or 11,000 years ago that significant civilizations began to form in parts of Asia and then a bit later in Egypt. It is also most likely that by this time substantial numbers of people had crossed over the Bering Strait land bridge and were occupying parts of the Americas. But communities and nations did not begin to form in the Americas until much later, perhaps emerging from the hunter/gatherer days only 4,000 or 5,000 years ago. Why the difference? I suggest it was at least partly due to the animals and vegetation that could be domesticated, that allowed agriculture and civilizations to develop in the “old world.” The only animals that could be domesticated in the Americas were the llama and the alpaca, that could only be used as a beast of burden. In the old world there were goats, sheep, cattle, pigs, horses and donkeys as well as varieties of grains that could be domesticated. And there was also the difference in metallurgy. The Eurasians entered the iron age around 500 BCE, while the Americans never left the bronze age. So, by and large, the differences between the nations and civilizations in the “old world” and those in the “new,” at the time of Columbus, were substantial, but after 1492 things would never be the same as what Mann describes as the Columbian Exchange occurred and the era of the Homogenocene began. These are what his next book, *1493*, is all about.

The gist of *1493* is that after Columbus, the world underwent unprecedented change in that people, domestic animals, plants and commodities as well as diseases, began to be transported, both ways, between the old world and the new world. This was really the start of globalization as wooden sailing ships crossed both the Atlantic and Pacific oceans carrying the various kinds of cargos mentioned above. Mann uses the term homogenocene to describe this mixing that made the world more homogeneous and describes the actual events themselves as the Columbian Exchange.

A few examples of the Columbian Exchange include the settling of the Americas by people from Spain, Portugal, the British Isles and France. The movement of slaves from Africa and China to the Americas, the introduction of American produce such as maize (corn) potatoes, tomatoes, chili peppers, yams, peanuts, squash and tobacco to Europe and Asia. The export of silver from Peru to China in exchange for silk and spices, the transfer of stolen gold and silver from Central and South America to the coffers of Spain, the

introduction of domestic animals from Europe to the Americas, the introduction of smallpox to the Americas and also the introduction of Christianity to the Americas in order to “civilize” the “savages.”

1493 consists of a Prologue, an Introduction and four Parts, each with two chapters:

- Part One – The Tobacco Coast and Evil Air.
- Part Two – Shiploads of Money and Foreign Tubers and Jade Rice
- Part Three – The Agro-Industrial Complex and Black Gold.
- Part Four – Crazy Soup and Forest of Fugitives.

The Tobacco Coast is about the colony of Jamestown established in 1607 in what became Virginia. It chronicles the relationship between the settlers and the Indian empire called Tsenacomoco, led by its chief Powhatan. Relations were sometimes peaceful sometimes not. Although the area was rich in seafoods, the settlers were dependent on the supply of maize and other staples from the Indians in exchange for guns, axes, knives, iron pots, mirrors, glass beads, and copper sheets.

Three historical figures lived at this time in Jamestown. They were John Smith, Pocahontas and John Rolfe. The story of Pocahontas, favourite daughter of Chief Powhatan, saving John Smith’s life is probably fictional, but the two did know each other and Pocahontas was instrumental in assisting in negotiations between the settlers and her father in obtaining food that saved the colony from extinction. In 1614, a year after she had been converted to Christianity and her name was changed to Rebecca, she married John Rolfe. They had a son, Thomas Rolfe, in 1615. In 1616 the family sailed to England and Rebecca was widely received as visiting royalty. In 1617 Rebecca became seriously ill and died. She is buried in St. George’s Church, Gravesend. John Rolfe returned to Virginia and was involved in growing and exporting tobacco to England.

The Virginia Company started by English investors to reap profits from the new world was never profitable and did not survive. The colony of Jamestown was abandoned in 1699. The principal legacy was the beginning of the tobacco trade and industry that lasted for 300 years before it was proven that smoking is a cause of lung cancer and smoking became much less popular.

As the name infers, **Evil Air** is about the introduction of European diseases into the Americas. The indigenous natives had no immunity to these diseases and as has been already noted, as many as 90% of the natives were wiped out. The diseases included malaria, dysentery, yellow fever, tuberculosis, influenza and of course smallpox. It is noted that black slaves from Africa were immune from malaria and did not succumb to this disease as did the indigenous natives and the European settlers as well.

Shiploads of Money is about the shipping of silver from Peru to China in exchange for silk and spices. Peru was blessed with what was probably the richest silver deposit in the world. Most metallic ores have a metal content of only a few percent, but the Peruvian deposit had an unbelievable fifty percent level of silver. The deposit was over three hundred feet long, thirteen feet wide and three hundred feet deep. Nearby was the Imperial Villa of Potosi which grew into a boom town of over 160,000 by 1611. Spaniards employed local natives to work in the mines under extremely harsh conditions and later African slaves were also imported to work in the mines.

Heat was originally used to refine the ore, but this was inefficient and in the 1550s the Spaniards discovered a more efficient Chinese method using mercury rather than heat to extract pure silver. As luck would have

it, an Andean peak 800 miles northwest contained rich deposits of mercury. And of course, as expected, the mercury miners suffered the long-term effects of mercury poisoning.

Silver ingots were shipped to the Philippines where the ships were met by Chinese Junks loaded with silk and other items desired by the Europeans. This was free trade at its best as ships were loaded both ways. There was no mention of tariffs or duties.

Foreign Tubers and Jade Rice is mostly about the importation of the American produce already mentioned into Asia to supplement the major crop, rice. Some Chinese farmers switched from other crops to growing tobacco because it was more profitable to do so. Also, in this section, mention is made of the Malthusian trap. Rev. Thomas Malthus was Britain's first professional economist. In 1798 he published a treatise stating that "the power of population is greater than the power in the earth to produce sustenance for man." He forecast correctly that populations would grow exponentially, and it has. It has grown from one billion in 1800 to over seven billion today and could reach ten billion by 2050. He also forecast that food production would grow only linearly resulting in starvations. This was known as the Malthusian trap. But the trap has not yet sprung due to the Agro-Industrial Complex as is detailed in the next section.

The Agro-Industrial Complex begins discussing potatoes, the fifth most important crop worldwide. Potatoes are almost a complete food. Humans can live solely on potatoes if supplemented with dairy products like milk or cheese. Potatoes can yield in weight as much as eighteen times as much as grains.

Many scholars believe that the introduction of this Andean tuber to Europe was a key moment in history, "permitting a handful of European nations to have dominance over most of the world between 1750 and 1950. Hunger's end helped create the political stability that allowed European nations to take advantage of American silver. The potato fueled the rise of the West."

The three pillars of the agro-industrial complex are **improved crops, high intensity fertilizers and factory-made organic pesticides**. Much has been made of the post-war "green revolution" in which higher yielding varieties of crops have resulted from selected plant breeding. The fixation of nitrogen from the air by the Haber-Bosch process in Germany in the early 1900s and the development of the phosphate and potash industries has enabled the production of economical fertilizers that have boosted crop yields substantially as has the introduction of herbicides, insecticides and fungicides. All three have prevented the Malthusian trap from springing. There is no shortage of food. The problem is getting it to all the people who need it, due to economic conditions and other factors.

Avoiding the Malthusian trap has been a major accomplishment. University of Manitoba geographer Vaclav Smil has estimated that without the impact of the Haber-Bosch process of synthesizing atmospheric nitrogen into ammonia, two out of every five people on earth would not be alive today.

But all is not sweetness and light. The agricultural evolution has brought problems. Over fertilization has cause some ground water, stream, and lake contamination. Insects have become resistant to some insecticides, requiring the development of new ones. Some insecticides may be killing bees, essential for pollination of some crops. Monoculture may be causing some soil deterioration and factory farms are the concern of animal right activists. And agriculture is a major cause of climate change, both from ruminants belching methane and the use of fossil fuels to drive farm machinery. All this presents farmers with a challenge in helping to protect the environment for future generations.

One might expect the chapter on **Black Gold** to be about oil, but instead it is about rubber. Three commodities are essential for the modern industrial economy to survive and prosper. They are **steel, fossil fuels (coal and oil) and rubber**. Steel and coal have been around for centuries and were essential for the start of the industrial Revolution, but oil and rubber became essential for the further development of industrialization.

Rubber was unknown to the old world until the Spanish brought some rubber balls from the Amazon. These balls were fashioned by Amazon natives from latex, the milky substance extracted from a tree with the botanical designation *Hevea brasiliensis*. The Europeans were amazed that these balls would bounce and that strands of this substance would stretch and then bounce back to original size. Never before, had anything like this been seen in Europe.

Rubber owes its elastic characteristics to its molecular structure. The basic molecule is isoprene, C₅H₈. The isoprene molecules join together to form long chains of carbon and hydrogen atoms. In rubbers static state, these chains are jumbled up, but when rubber is stretched the chains line up, but jumble up again when the tension is released. Rubber is an elastomer, a natural polymer, and of course today we have many synthetic plastic polymers including polythene, polystyrene, as well as synthetic rubber.

Raw latex coagulates when exposed to the air to form gum rubber, but this product is unstable and almost useless for manufacturing rubber products. A process to stabilize rubber was needed. In the 1840s Charles Goodyear accidentally discovered what came to be known as vulcanization. By adding sulfur and heat to the gum rubber, the result is a stable compound that can be manipulated to manufacture usable rubber products.

An early important use of rubber was of course for inflatable tires, originally for bicycles and later for automobiles. Many other uses soon developed, including electrical insulation, rubber belts for driving machinery, rubber hoses, rubber washers, rubber O rings, rubber gaskets, surgeon gloves and yes, condoms. All needed for modern societies to function.

Until early in the twentieth century most of the world's rubber came from the Amazon basin from about twenty-five thousand mostly small rubber estates. The trade itself centred on the coastal city of Belem (the financial centre) and the city of Manaus the centre of rubber collection a thousand miles inland. Manaus was one of the most remote cities on earth and one of the world's richest, a turn of the century boom town.

But some countries began to be concerned that Brazil was the sole source of rubber and attempts were made to smuggle rubber-tree seeds out of Brazil and propagate trees for planting elsewhere. Finally, Englishman Henry Wickham smuggled seventy thousand seeds to England in 1876. By 1897 Sri Lanka and Malaysia had a thousand acres of rubber plantations. Fifteen years later there were more than 650,000 acres. For the first time more rubber came from Asia than the Americas. Eventually the Brazilian rubber industry petered out.

Synthetic rubber made from styrene and 1,3-butadiene was invented in Germany during WWI and was essential for the Allies in WWII, but it has never fully replaced natural rubber. Natural rubber is more resistant to fatigue and vibration. Natural rubber still retains 40% of the market, being used for the manufacture of surgeon gloves, big truck and airplane tires, and the sidewalls in radial tires among other things.

Mann ends the section on rubber with a warning about the leaf blight organism *Mycrocylus ulei*. This organism plus malaria helped bring on the demise of the Brazilian rubber industry. If leaf blight spores were ever transported from the Amazon to south east Asia, the rubber industry would be threatened, and this could have devastating effects on the world economy. Our present experience with COVID-19 illustrates how one organism can bring world commerce almost to a standstill. There is a lesson here!

The chapter entitled **Crazy Soup** in Part Four describes the extent and the importance of the slave trade in the development of the Americas, the importance of the introduction of sugar cane into Mexico, the Caribbean and Brazil, and also the mixing of races in Spanish America. It did not take long for interbreeding to occur. It began with the Conquistadors. Pizarro took up with a member of Incan royalty in Peru and Cortez took up with several Aztec women in Mexico. Over time a lot of intermarriage took place as natives mixed with Spaniards, Portuguese, Africans and Chinese resulting in the mixtures we have today. The mixed-race Metis in Canada are not mentioned.

The Christianization of Mexico, Central and South America is also mentioned in this chapter. On Columbus' second voyage in 1493 he brought several Franciscan priests to Hispaniola. Pope Alexander VI supported Spanish royalty in their quest to bring the conquered to salvation. Columbus being a devout Catholic, endorsed and furthered this endeavour. Both the Aztecs and the Mayans were polytheistic and engaged in offering human sacrifices to appease the gods. I suppose it can be argued that bringing an end to barbaric religious practices through the Christianization of natives that offered human sacrifices was a beneficial outcome. In any case, in time, Catholic priests and missionaries were successful in establishing Roman Catholicism throughout all the Spanish and Portuguese speaking countries of the Americas.

The chapter entitled **Forest of Fugitives** is about the establishment of communities in various places, often in forested areas of South America, by escaped slaves.

Summary. The central theme of *1493* is the reality that after the discovery of America by Europeans, the world changed forever, with the transfer of people, animals, plants, and commodities in all directions between continents. This was truly the beginning of Globalization. I believe Charles Mann has done a great service in laying out in considerable detail the historical events that have occurred in the years since Columbus. Perhaps something can be learned that could help in solving the Global problems we face today. Both *1491* and *1493* are large volumes, each over five hundred pages, and will be of interest mainly to those who have a keen interest in historical events. So, for other readers, I hope I have provided an interesting summary of these important historical events.

What About Canada?

Canada is not mentioned in *1491* and only once in *1493*. This mention is in relation to the Irish potato famine. By the 1800s potatoes were a staple food in Ireland and in 1846 a blight (*P. infestans*) wiped out much of the crop, resulting in a great many deaths due to starvation. This famine also prompted an emigration of Irish people to the United States and Canada. The book mentions the Irish immigrants being processed at a quarantine station on Grosse Ile near Quebec City.

Canada was too far north to be of interest to the Spanish, so it was left to the French and the British to colonize what became Canada. The French settled principally in what is now Quebec and the British in the rest. First English explorer was John Cabot who reached the North American coast in 1497 and first French

explorer was Jacques Cartier who sailed into the Gulf of St. Lawrence in 1534. All early explorers and settlers had of course, to engage with the indigenous inhabitants, sometimes in trade (mainly furs) and sometimes in conflict.

It has really not been determined just how many First Nations people inhabited the land before the “white men” came, but it is estimated that between half and three quarters were wiped out by smallpox because the natives had no immunity. In any case, the land they rightfully owned was eventually “stolen” and taken over with the Indians ending up on reserves as per the Indian Act of 1876.

Even before Confederation in 1867, it was decided that the Indians needed to be Christianized and assimilated into Canadian society. To accomplish this, a network of Residential Schools funded by the Canadian government's Department of Indian Affairs and administered by Christian Churches was set up. The school system was created for the purpose of removing Indigenous children from the influence of their own culture and, "to kill the Indian in the child." Thus, there was a dual purpose: to integrate indigenous children into Canadian society, and to convert "savage heathens" into Christians. The result was that the native children did not integrate into Canadian culture and lost connection to their own culture. This was proselytizing big time, and today about two thirds of indigenous people are Christians.

The first Canadian residential school opened in Brantford, Ontario, in 1831. The last closed in Punnichy, Saskatchewan, in 1996. Over the course of the system's more than hundred-year existence, about 30 per cent of Indigenous children (around 150,000) were placed in residential schools nationally. The number of school-related deaths remains unknown due to an incomplete historical record, though estimates range from 3,200 upwards to 6,000. Separating children from their parents is wrong and even cruel, causing severe psychological stress. Children in the schools also suffered physical abuse, with excessive use of the strap, as well as sexual abuse by some staff members. Malnutrition was also present. The legacy of the system has been linked to an increased prevalence of posttraumatic stress, alcoholism, substance abuse, and suicide, which persist within Indigenous communities today. All in all, a horrific black mark on Canadian society.

The irony here is, the Indigenous religious practices, though varying from tribe to tribe, were in my view far superior to Christianity. There seemed to be a monotheistic belief in a great spirit that created and controls the world. The Algonquins called this spirit the Great Manitou, hence the name Manitoulin Island. Various religious ceremonies were observed, Potlaches in the West and Sun Dances on the Prairies. Respect for nature was always present because survival depended on preserving the natural resources that existed around them. Thus, it seems to me that the indigenous people were first-class ecologists. Instead of us teaching them about Christianity, perhaps they should have been teaching us about ecology.

Fortunately, past wrongs are now been recognized and steps are being taken to make amends, but there is still a fair distance to go with issues such as land claims and amending the Indian Act. (DAH).

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