

NATIVE AMERICANS FICTIONS AND FACTS

From: Ten Lies About Indigenous Science by Kay Marie Porterfield (Co-Author of the Book *Encyclopedia of American Indian Contributions to the World*)

Fiction: Europeans "discovered" scientific knowledge, but American Indians "stumbled upon" it – they didn't know what they were doing.

Fact: All scientific knowledge comes from a process of trial and error – a messy guessing game that involves many false starts and much stumbling. Scientists first make an educated guess based on their observations. Then they test it and carefully observe the results to see if the guess was correct. If it wasn't, they guess again. The haphazardness of this process led Albert Einstein to say, "If we knew what it was we were doing, it would not be called research, would it?"

Pre-contact American Indians used trial and error, carefully observing the results of these trials. Three pieces of evidence, selected from many, are:

- Indians in the North American Northeast used foxglove (*Digitalis purpurea*) to treat heart problems. They administered it with extreme care since high doses were needed and the plant is highly toxic.
- Manioc, a staple food crop of Mesoamerican, Circum-Caribbean and South American Tropical forest peoples, is poisonous in its natural state. Four to five thousand years ago indigenous people discovered a process to detoxify the plant and began cultivating it.
- Indigenous people of Mesoamerica invented a four-step process to cure vanilla, transforming it into a flavoring ingredient. Vanilla processing plants were not established in Europe until the 1700s because Europeans couldn't figure out the indigenous process.

Using loaded language to hide the fact that pre-contact American Indians gained knowledge in the same way all scientists do is not only biased scholarship – it is racist scholarship.

Fiction: American Indian knowledge and inventions sprung from hunches or intuitions, rather than rigorous and systematic study. Hunches and intuitions aren't valid; linear thinking is.

Fact: Undoubtedly many American Indian scientific discoveries were initially based on intuition, as are many modern Western discoveries today. Intuition is a critical part of science. If knowledge based on hunches, intuitions and lightning bolts of inspiration doesn't count, then organic chemistry is invalid. (Freidrich August von Kekule's dream of a snake biting its tail enabled him to visualize the structure of the benzene

molecule and birth the field of organic chemistry.) So is the periodic table of elements, an inspiration revealed to Russian chemist Mendeleev in a dream.

We can forget about neurochemistry. (A dream showed Nobel prizewinner Otto Lowei that the chemical messengers, we now call neurotransmitters, are responsible for the flow of information in the human brain.) We can write off pasteurization, penicillin, and hundreds of other modern discoveries and inventions while we're at it.

Alexander Graham Bell used intuitions that he called "a conquering force within" to invent the telephone and Henri Poincare, the mathematician who created the science of topology, said, "It is through science that we prove, but through intuition that we discover."

Holding American Indians to a narrower definition of the scientific discovery process than is used for Europeans is not only unfair scholarship – it is racist scholarship.

Fiction: American Indians did not know about the scientific method, so their knowledge and inventions could not be scientific.

Fact: Even if the scientific method were the only way to make discoveries, American Indians can't be faulted for not using it before 1492. Europeans didn't use it either because it hadn't yet been invented. Historical researchers seldom mention this critical fact.

Most scholars credit Francis Bacon, an English philosopher and statesman who lived from 1561 to 1626, as the father of the scientific method. Sometimes Galileo, an astronomer, who lived from 1564 to 1642, is also credited. Both were born well after Columbus landed in the Americas. The fact that Galileo was arrested by the Catholic Inquisition in 1633 for heresy and held prisoner until he died in 1642 indicates that the scientific method was not only unwelcome in Europe for at least 150 years after 1492 – it was considered a sin and a crime.

Insisting that pre-contact American Indians ought to have used the scientific method before it existed is not only sloppy scholarship – it is racist scholarship.

Fiction: American Indians (the Maya) independently invented the wheel, but it isn't a real invention because they only used it for toys.

Fact: Many European scientific inventions started out as toys or "curiosities." These include the telescope and the microscope. "We are more ready to try the untried when what we do is inconsequential," wrote

philosopher Eric Hoffer. "Hence the remarkable fact that many inventions had their births as toys."

Scholars who use wheeled transportation as a benchmark for measuring civilization rarely take the natural environment into account. Suitable draft animals did not exist in the pre-contact Americas. The two largest animals – bison and llamas – weren't easily domesticated to pull carts or chariots

Terrain was another factor that discouraged the development of wheeled transportation in the Americas. European new to North America often found their wheeled wagons inappropriate for the land they were trying to cross. Frequently they traded this clumsy transport for American Indian forms of transportation – the canoe, snowshoes and toboggans. Indigenous people throughout the Americas used runners to deliver communications. The Inca built a road system that included suspension bridges for their runners.

Failing to consider the environmental context in which American Indian science arose is not only superficial scholarship – it is racist scholarship.

Fiction: American Indian people were living in Stone Age culture at the time of conquest.

Fact: Although the polar Inuit near Baffin Bay did use meteorites to make iron blades, for the most part, other American Indians did not work with iron (a prerequisite for entering the Iron Age). American Indians did begin making metal tools before Europeans did. The people of the Old Copper Culture in the Great Lakes region of North America 7,000 years ago are considered by many scientists to have been the oldest metal workers in the world. They developed annealing to strengthen the tools they made.

Pre-Columbian metal workers invented sophisticated techniques for working with other metals. Pre-contact metallurgists living in what are now Ecuador and Guatemala learned how to work with platinum, a metal that has the extremely high melting point of 3218 degrees by developing a technique called sintering. Europeans were unable to work platinum until the 19th century. Metal workers in other parts of the Americas knew how to solder, could make foil and used rivets to fasten pieces of metal together.

In areas where no metal deposits lay close to the surface, American Indians made tools of bone, wood and stone. The blades of their flint surgical instruments were so thin that the incisions they made could not be duplicated until the advent of laser surgery.

Focusing on the Iron Age while failing to mention the metallurgical abilities of many American Indian culture groups is not only ignorant scholarship – it is racist scholarship.

Fiction: The Aztec use of ritual sacrifice proves they were bloodthirsty and barbaric. This deserves our attention, not their accomplishments.

Fact: The Aztec did practice ritual sacrifice, using large numbers of prisoners of war in these rituals. The Old World has a history of ritual sacrifice and killing prisoners that could just as easily be termed bloodthirsty and barbaric.

Hammurabi's Code, considered a sign of emerging civilization by scholars, established the death penalty in Babylon for 25 crimes in the Eighteenth Century B.C. By the Seventh Century B.C., the Greeks of Athens had established the Draconian Code that established death as the punishment for all crimes. Roman law in the Fifth Century B.C. mandated drowning, impalement, live burnings, drowning or beating to death for executing prisoners.

According to limited archaeological evidence, some groups of the Celts, a dominant tribe of Western Europe that settled in what would become the British Isles, practiced both ritual sacrifice and headhunting. By the Eleventh Century A.D. William the Conqueror outlawed the death penalty except during war, but in the Sixteenth Century, Henry VIII ordered an estimated 72,000 people executed. Favored methods were burning at the stake, boiling, beheading hanging and drawing and quartering. In the 1700's Britain had 222 crimes punishable by death including stealing a rabbit and cutting down a tree.

The Inquisition, begun by the Catholic Church in the early 13th century and that peaked between 1550 and 1650, focused on eliminating heresy. Researchers who studied court documents estimate that between 50,000 and 100,000 people were put to death in Europe. Many more were tortured. Victims included midwives, herbal healers, single women who owned property and lived alone, pagans, people whose neighbors didn't like them, and those who were in the wrong place at the wrong time.

Emphasizing Aztec sacrifice in order to minimize the culture's accomplishment while turning a blind eye to European historical violence is not only self-serving scholarship – it is racist scholarship

Fiction: European scientific knowledge was more advanced than that of Indigenous Americans at the time of contact.

Fact: Pre-contact American Indian healers had developed a sophisticated system of medical treatment compared to European healers of the time, who relied on bloodletting, blistering, religious penance, and concoctions of lead, arsenic and cow dung to treat disease. In addition to performing surgery, American Indians from several culture groups understood the

importance of keeping wounds sterile and used botanical antiseptics. They made syringes out of bird bones and animal bladders to administer plant medicine.

Indians of North, Meso and South America had developed so many botanical medications by the time of contact that the Spanish King, Philip II sent physician Francisco Hernando to the Americas in 1570 to record Aztec medical knowledge and bring it back to Europe. Eventually 200 American Indian botanical remedies were included in the U.S. Pharmacopoeia, an official listing of all effective medicines and their uses.

Another area of scientific knowledge in which American Indians excelled was plant breeding. American Indian farmers, who had formed a working knowledge of plant genetics between 5200 and 3400 B.C., used seed saving to create hundreds of varieties of food crops.

By comparison Europeans showed little interest in plant genetics. In 1865 when Gregor Mendel made public his experiments with hybrids, the European scientific community scorned him. Not until the early 1900s did European scientists begin to take agricultural experimentation seriously.

Omitting the scientific and technical accomplishments of American Indian while ignoring the shortsightedness of the European science is not only incomplete scholarship – it is racist scholarship.

Fiction: American Indians have invented a number of positive things, but they also invented scalping.

Fact: American Indians probably learned the practice of scalping from the Europeans. Although archaeologists have found a few prehistoric human remains in the Americas that show evidence of cut marks on the skulls, they disagree about whether these marks are evidence of scalping. Absolutely no evidence exists that scalping was a widespread practice in the Americas before European contact. If it was practiced, it was done by very few tribes and then very infrequently.

On the other hand, scalping was a well-established tradition for Europeans. Ancient Scythians (Russians) practiced it. Herodotus, the Greek Historian, wrote of them in B.C. 440, "The Scythian soldier scrapes the scalp clean of flesh and softening it by rubbing between the hands, uses it thenceforth as a napkin. The Scyth is proud of these scalps and hangs them from his bridle rein; the greater the number of such napkins that a man can show, the more highly is he esteemed among them. Many make themselves cloaks by sewing a quantity of these scalps together."

Much later the English paid bounties for Irish heads. Because scalps were easier to transport and store than heads, Europeans sometimes substituted scalping for

headhunting. Records show that the Earl of Wessex England scalped his enemies in 11th century.

In 1706 the governor of Pennsylvania offered 130 pieces of eight for the scalp of Indian men over twelve years of age and 50 pieces of eight for a woman's scalp. Because it was impossible for those who paid the bounty to determine the victim's sex – and sometimes the age – from the scalp alone, killing women and children became a way to make easy money.

During the French and Indian Wars and later during the war between the British and the Colonists, both the British and the French encouraged their Indian allies to scalp their enemies providing them with metal scalping knives.

The practice of paying bounties for Indian scalps did not end until the 1800's.

Disparaging American Indian culture by blaming Indians for scalping while omitting reference to the long standing European tradition of bounties for scalps is not only partial scholarship – it is racist scholarship.

Fiction: Syphilis originated in the Americas. This cancels out any positive contributions American Indians made.

Fact: Archeological evidence provides strong evidence that syphilis was present in Europe before Columbus and his men returned from their first voyage to the Americas.

Excavations at a friary in Hull, England, have uncovered at least a dozen skulls displaying evidence of three-stage syphilis. These have been carbon dated to between 1300 and 1450 A.D. Pre-Columbian skeletons with syphilis have also been found elsewhere in Europe, including Ireland, Naples and Pompeii, as well as at an excavation in Israel. This physical evidence lends credence to historical writings from Europe that place syphilis in Europe between 150 and 200 years before Columbus set sail on his first voyage.

Proponents of the theory that syphilis originated in the Americas often cite historical reports that an epidemic of syphilis laid waste to French soldiers in 1494. Because the damage that syphilis does to the body progresses at a slow rate, it is unlikely that it could have been contracted the year before.

Authors who claim as fact that syphilis originated in the Americas, often fail to note that an estimated 65 percent or more of American Indians died from small pox, typhoid, scarlet fever, influenza, dysentery, diphtheria, chicken pox and cholera brought to the America by Europeans. (Smallpox alone had a mortality rate of 90 per 100 cases.)

Claiming that syphilis originated in the Americas is not only scholarship that draws hasty conclusions from flimsy evidence – it is racist scholarship.

Fiction: The indigenous peoples of the Americas were defeated by the European military because the Europeans were intellectually superior to the Indians.

Fact: Indigenous populations of North, Meso and South America were decimated by disease brought from Europe, diseases against which they had no immunity. Modern military historians believe that disease was the major factor in the military defeat of American Indians.

By 1495, two years after Columbus' first voyage, fifty-seven to eighty percent of the native population of Santa Domingo had died from small pox according to R.S. Bray, author of *Armies of Pestilence-The Impact of Disease on History*. (1994). By 1515, two-thirds of the Indians of Puerto Rico were dead from the disease.

Ten years after Cortez arrived in Mexico, 74 percent of the indigenous people there had died from disease so that only six million remained. Indians living in New England and Canada also died in great numbers. All the time, more Europeans continued to arrive on the continent.

Later small pox would sweep across the North American continent, leaving death in its wake. According to some estimates that about one million one hundred and fifty thousand Indians lived north of the Rio Grande in the early sixteenth-century. By the early 1900s only about four hundred thousand Indians lived in this area. Most died from European disease.

Not only were American Indians outnumbered, one can only imagine the fear, grief and social disruption these plagues caused them. In addition to taking lives and land, Europeans took Indian technological knowledge, claiming it as their own.

Asserting that European military domination of American Indians occurred because Europeans were intellectually superior and, at the same time, ignoring the hundreds of Indian inventions that Europeans co-opted is not only shoddy scholarship – it is racist scholarship.

Fiction: Europeans had guns. Indians didn't. This proves Europeans were far more intellectually advanced than Indians.

Fact: While it is true that European colonizers had firearms, this technology was a relatively new invention. After obtaining guns from traders and trappers, American Indians quickly became expert marksmen.

Despite their skill using guns and keeping them in working order, they were not able to manufacture them or able to get their hands on as many guns as the Europeans possessed.

Although history books often leave the impression that Europeans were accomplished gun manufacturers well before contact, firearm technology was still in its infancy when Columbus set sail. The English did not have handguns until the 1375. The Italians did not have them until 1397. The first mechanical device for firing the handgun was not invented until 1427. Europeans used crossbows as weapons of war until 1485 when half of the English army was equipped with guns. Europeans did not use guns for hunting game until 1515.

Basing a claim of innate superior intelligence on an invention that was only 117 years old and not in general use in 1492 is not only is not only ridiculous scholarship – it is racist scholarship.

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